The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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HIGHLY IMPORTANT SALE.
FENTON-PARK COLLIERY, STAFFORDSHIRE POTTERIES.

TO COAL OWNERS, ENGINEERS, IRON FOUNDERS, and MINE AGENTS.—JOHN HIGGINBOTTOM respectfully announces that he is favoured with the commands of the Fenton-park Colliery Company to DISPOSE OF, BY PUBLIC AUCTION, on Friday, the 21st day of April, the entire of their powerful and valuable STEAM WINDING AND PUMPING ENGINES, BOILERS, PIT GEARING, CHAINS, ROPES, MACHINERY, and IMPLEMENTS, recently in use at that important colliery, the lease of which is now terminated.—The sale to commence at Eleven for Twelve o'clock precisely.

Lot.
1. Four small cast-iron spur-wheels.
2. One spur-wheel, 6 feet diameter.
3. One ditto, 7 feet ditto.
4. One ditto, 4 ft. 6 in. ditto.
5. Four small ditto.
6. One flat-rope pulley wheel, 3 ft. 6 in. diameter.
7. Cast-iron grindstone frame.
8. One bevelled spur-wheel, 4 ft. 6 in. diameter.
9. One spur-wheel, 6 feet diameter.
10. One ditto ditto, 7 feet diameter, with shaft, 10 feet long.
11. Driving wheel shaft and crank, to match lot 10.
12. One T-bob, 13 feet beam by 9 ft. 6 in. standard.
13. Double bell crank, to work 4-feet stroke.
14. One V-bob, 4 ft. 9 in. on arm.
15. One cast iron winding-engine, beam 13 feet long.
16. One cast-iron connecting-rod, 14 feet long.
17. One cast-iron fly-wheel, in two halves, 14 feet diameter.
18. One cast-iron cylinder, 6 ft. 6 in. long, 82 in. diameter.
19. Wrought iron open topped boiler, 6 feet diameter.
20. Two tons of round iron chain.
21. 273 yards of flat chain.
22. One windbore and short pipe, 10 in. diameter.
23. Seventeen cast-iron pump trees, 9½ in. diameter.
24. Twenty cast-iron pump-trees, 10½ in. diameter, including two working barrels, two clack doorpieces, two bucket doorpieces, two windbores.
25. Thirty-three cast-iron pump trees, 11 in. diameter, and two doorpieces.
26. Three clack doorpieces, two bucket doorpieces, 13 in. diameter.
27. A portable direct acting high-pressure steam-engine, cylinder 14¼ inches.
28. Ditto ditto ditto.
29. Wrought-iron boiler, 27 feet long.
30. An atmospheric steam-engine, 31 in. cylinder, wrought-iron boiler & underwork.
31. A powerful single-acting pumping-engine, 63-inch cylinder, 8-feet stroke, by Sherratt, of Manchester, two large wrought-iron circular boilers, with steam and feed pipes, fly-wheel, air-pump, and condenser, two sets of 13-inch cast-iron pump trees, 33 yards long each, with clackdoors and working barrels, about 326 yards of wood pump-rods, 7¼-inch and 6-inch cast-iron floorbeams, iron plates, wood floors, and ballustrade, staircases, winding-crab, for raising cylinder cover, massive wood beams, stone seating, and holding down pins, outer gallery and ballustrade, capstan and shears, with 4¼-inch rope, 330 yards long.
32. A capital winding steam-engine, by Sherratt, 31-inch cylinder, air-pump and condenser, fly-wheel, cills, and holding down pins, three waggon-shaped boilers, steam and feed pipes, winding drums, shafts, and arms.
33. Three pit frames, pulleys, and waggons.
34. An excellent winding steam-engine, 31-inch cylinder, air-pump and condenser, wrought-iron boiler, steam and feed pipes, winding drums, shafts and arms, cills and bolts.
35. Two pit frames, pulleys, and waggons.
36. Wrought-iron waggon-shaped boiler, 12 ft. 6 in. by 6 ft. 6 in.
37. An atmospheric winding steam-engine, 30-inch cylinder, with air-pump and condenser, two boilers, steam and feed pipes.
38. One pit waggon.
39. A useful atmospheric winding steam-engine, with condenser, 23½-inch cylinder, cast-iron boiler, steam and feed pipes, winding drum shaft, and arms.
40. One weighing machine.
41. One ditto ditto.
42. One ditto ditto.
43. Several tons of cast-iron tramrails.

For further particulars, or to view the property, apply on the premises, to Mr. Aaron Barton, agent to the Fenton-park Colliery Company.
District Bank, Longton, March 30.

TO MINERS, &c.—TO BE SOLD, BY PUBLIC AUCTION, the ENGINE, BOILER, PUMPS, WHIMSEYS, and all other MATERIALS belonging to and known by the name of the UNION MINING COMPANY, situated on Halkin Mountain, near Holywell. The sale to take place on Wednesday, the 10th of May, at the White Horse Hotel, Holywell, at Two o'clock.—The above may be seen, and all particulars known, by applying to Mr. J. Steffes, Pentre, Halkin.

MAESTEG IRON WORKS AND MARGAM TIN PLATE WORKS, Glamorganshire.—These TWO IMPORTANT WORKS, now in actual operation, ARE FOR SALE, BY PRIVATE TREATY, up to the 24th April inst. The Maesteg Works consist of two blast-furnaces, with steam-engine, of 65-horse power, and have an ample supply of coal and iron ore, extending under upwards of 600 acres of land. Several veins of black-band ironstone, of rich produce, have recently been discovered on this property.—The Margam Tin Works are adapted to the make of six boxes tin plates per week. The water-power is considerable, and the whole of the machinery in good working order.

Printed particulars may be had on application to Mr. David Rowland, solicitor, White Lion-court, Cornhill, London, or to Mr. Wm. Llewellyn, solicitor, Neath.

Offers to purchase must be sent (sealed), indorsed, "Proposals for Purchase of the ——— Works," and enclosed under cover, addressed to the said Mr. William Llewellyn, on or before the 24th April inst.

The works may be inspected by applying to Messrs. Motley & Co., on the premises.

INVESTMENT.—Mr. ENGLISH is authorised to negociate for the INTEREST of ONE-THIRD in a PROPERTY, which not only pays full 10 per cent. on the capital employed at the present moment, but holds out advantages to the extent of threefold its present returns. The sum of £1000 will be required, merely for floating capital, on the advance of which an interest, to the extent of one-third, will be at once secured in the property, on which nearly £10,000 has been already expended.—For particulars apply personally to Mr. English, 26, Fleet-street, London.

VALUABLE LEAD MINE & COLLIERY.—TO BE SOLD, the LEASE of the valuable LEAD MINE of FALLOWFIELD, near Hexham, with all its MACHINERY, now in full operation, and raising a considerable quantity of ore. The establishment is very complete, with pumping, drawing, and crushing-engines, washing apparatus, smelt mill, with two hearths, air-furnaces, with every other requisite for carrying on the mine upon an extensive scale, and situated within two miles of the Newcastle and Carlisle Railway.—Also the LEASE of FALLOWFIELD COLLIERY, adjoining the lead mine. The winning is nearly new, with an excellent seam of very fine coal, and for which there is a considerable sale to Hexham and the neighbourhood.

For further particulars apply to Mr. Henry Smith, Mr. Watson's, High-bridge, Newcastle-on-Tyne, or to Mr. John Henderson, at the mine.

FOR SALE, by PRIVATE CONTRACT, on the ROSEWALL-HILL MINE, one and a half mile from St. Ives, in Cornwall, THREE STEAM-ENGINES, all now only three years ago; No. 1, a 56-inch cylinder PUMPING-ENGINE, 9-feet strokes in the cylinder and 7-feet in the pump, with all wood work complete, including doors and windows and first pieces of connection-rod; No. 2, a STAMPING ENGINE, on Sims's combined cylinder principle—40 horse power. The consumption of coals with this engine never exceeded 2½ lbs. per horse power per hour; No. 3, a WINDING-ENGINE, 20 inch, double power, Bradford and Wall engine—6-feet stroke, with winding apparatus (iron) complete. The whole of these engines are on the most modern construction, made of the best material and workmanship; are only out and a half mile from a good shipping port, and may be had very cheap.—Application to be made to Mr. Matthias Trudinich, of Camborne, to Mr. James Sims, engineer, at Redruth; or to Mr. English, 26, Fleet-street, London.
Redruth, Dec. 9.

SEYSSEL ASPHALTE COMPANY (CLARIDGE'S PATENT).—Established March, 1838.—The extensive patronage which this valuable MINERAL production continues to receive from the most eminent ARCHITECTS and ENGINEERS in this country and abroad, distinguishes it from the numerous fallacious compositions which its reputation gave rise to, but which having been found very inferior to the original material, most of them have ceased to be used. Its merits being well known, it is only necessary to refer to a few of the public works already executed and now in progress. On the London and Greenwich Railway, and joint station, London bridge, 600,000 superficial feet; several thousand feet at the Great Western, Birmingham, Midland Counties, South Western, Brighton, Black-wall, and other railways; covering of arches at the South Metropolitan, Highgate, and Pentonville Cemeteries; the covering of the excavation at the Perch Rock Battery, Liverpool; the pavement in Whitehall; the carriage-drives at the Horse Guards, and at the entrance to the park by Apsley House; the cella and other apartments of the new prison at Horsefery; several works at the stations on the Dublin and Kingstown Railway; and many other public and private works in different parts of England, Ireland, and Scotland.—A scale of prices, with books of testimonials, can at all times be had at the company's depôt, where specimens of its various applications may be seen.
J. FARRELL, Secretary.
Seyssel Asphalte Depôt, Margate, near Westminster-bridge, March, 1843.

COLD-BLAST ANTHRACITE PIG-IRON.—Mr. D. Mushet, the author of the celebrated Treatise on the "Manufacture of Iron and Steel," who has made a series of most elaborate experiments on this extraordinary iron, in concluding, remarks:—"From these, and the former comparative experiments, it is abundantly evident, that the pig iron now making, with cold-blast and anthracite, at the Ystalyfera Iron-Works greatly exceeds in strength, in defective powers, and capacity to resist impact, any iron at this time manufactured in the United Kingdom."
Ystalyfera Iron-Works, Swansea.

IRON TRADE.—TO CAPITALISTS.—Referring to my advertisement in a former Number of the *Mining Journal*, bearing an invitation to Capitalists to join me in the erection of Blast-Furnaces and Mills, in the centre of Germany, for the manufacture of 15,000 tons (per annum) of rails, wanted for the construction of the German railways, I beg to state, in reply to questions put to me from various quarters, that MY MINING PROPERTY, for the service of the establishment proposed, CONSISTS of COAL-FIELDS, to the extent of three English square miles, in the largest of which there are two strata of excellent coking coal, of seven to eight feet and of six feet thickness. My ORE-FIELDS are the largest and most valuable in all central Germany; they cover an area of more than thirty English square miles. The ores are excellent, yielding from 40 to 65 per cent. metal, and in quantity they are literally inexhaustible.
Persons who wish to treat with me best come over, next spring, and inspect property and localities.
S. MEYER,
Proprietor of Mines and Manufactories, at Hildburghausen, in Saxony.

TO ENGINE-BUILDERS AND PUMP-MAKERS.—PALMER and PERKINS' PATENT PISTON, fitted in a 10-inch pump, may be SEEN any day AT SCOTT'S WHARF, SOUTHWARK-BRIDGE, Bankside. In this application of it, there is no doubt; an ordinary amount of friction—represented by 292—is reduced to 29. If these pistons were fitted to the air-pump of marine and other condensing-engines, the effective power, or economy of fuel, would be materially increased; the larger the engines the more manifest would be the benefit.

RAILWAY CHAIRS, WHEELS, AND COLUMNS.—Underground Pipes for Gas or Water, Gas Posts, Palisading Bars, and Coping, Furnace Bars, Girders, Backs, Sash Weights, Barrow Wheels, Piles, and all sorts of heavy castings, EXPEDITIOUSLY GOT UP.—Prices furnished on application to Messrs. James Robertson and Co., Jamaica-street, Glasgow, or Mr. George Ogilvie Robertson, 6, Crescent, Minories, London.

CRUSHER.—A COPPER CRUSHER IS WANTED, complete.—Apply by letter, stating particulars and price, to James Wyld, Esq., Tregothnan Consols Mines, St. Day, near Truro, Cornwall.

WANTED, A PARTNER, with a small capital, in an ENGINEERING ESTABLISHMENT, in the centre of a coal field, and within a short distance of a shipping port. One who could render assistance in the management would be preferred.—Apply to Mr. English, office of the *Mining Journal*, 26, Fleet-street, London, of whom every particular may be obtained, and reference given to the principal.

LLANELLY WET DOCK, Carmarthenshire.—Notice is hereby given, that, for the purpose of cleansing the dock at Llanelly, the same will be LAID DRY, from the 20th to the 29th of APRIL inst. inclusive.
By order of the committee of management,
9, Old Jewry, London, April 1. JOHN BIGG, Chief Clerk and Secretary.

CONSOLIDATED TRETOIL MINING COMPANY.—The directors hereby give notice, that all SHARES whereon the call of 5s. per share, due on the 14th of March last, shall remain UNPAID after the 14th of April inst., will be liable to immediate FORFEITURE.—Certificates for shares must be left at the office to have the payment of the call notified thereon.
By order of the board, S. BUXTON, Secretary.
Consolidated Tretoil Mining Office, 6, St. Mildred's-court, Poultry, April 5.

IMPERIAL BRAZILIAN MINING ASSOCIATION.—Notice is hereby given, that the TRANSFER BOOKS will CLOSE on the 5th inst., and RE-OPEN on the next day after that of the general meeting in May, of which due notice will be given. GEORGE THOMAS, Secretary.
Winchester House, April 1.

MIDLAND COUNTIES RAILWAY.—The directors are READY to RECEIVE SEVENTEEN THOUSAND POUNDS on SECURITY of their LOAN NOTES, for three years, at interest after the rate of 4 per cent. per annum, to be paid half-yearly. By order, J. F. BELL, Secretary.
Leicester, March 16.

SHEFFIELD, ASHTON-UNDER-LYNE, & MANCHESTER RAILWAY.—TENDERS FOR LOANS.—The directors are prepared to GRANT MORTGAGES, under the powers of their Act of Parliament, FOR LOANS OF MONEY, in sums of not less than £100 each, and for periods of three, five, or seven years, at the option of the lender.—Interest, at the rate of 5 per cent. per annum, will be paid half-yearly, for which interest warrants will be given for the period agreed on, payable at the company's bankers in London, Manchester, or Sheffield.
Further information may be obtained at the company's offices in Manchester or Sheffield; at the office of Messrs. Parker and Smith, solicitors, Sheffield; Messrs. Bagshaw and Stevenson, Manchester; or Messrs. Johnson, Son, and Wetherell, Temple, London. By order,
Manchester, Feb. 15. J. PLATFORD, Secretary.

MR. JOHN KYMER'S PATENT FURNACE, whereby an ECONOMICAL APPLICATION of FUEL is EFFECTED, with RAPID EVAPORATION, and WITHOUT SMOKE.—A furnace, on this construction, is erected, and at work, at Messrs. Taddy and Co.'s, 40, Minories, where it may be seen, by cards, to be had on application to Mr. J. M. Stanley, 71, Cornhill, or Mr. H. English, *Mining Journal* Office, 26, Fleet-street.

TWEEDDALE PATENT DRAIN TILE AND BRICK COMPANY.—Landowners, Farmers, Draining-Tile, and Brickmakers, are informed that the COMPANY'S MACHINES, for the manufacture of Draining Tiles, of increased length and superior fabric, HAVE, by recent improvements, BEEN ADAPTED TO HAND LABOUR, and, being moved with the greatest facility from place to place, are now applicable to existing tile works of any construction or capacity. The royalty, as reduced, is 1s. per 1000, decreasing on an annual make of a given amount. The company are enabled also confidently to recommend their Patent Brick Machine, as being portable, easily worked, and economical.
Applications to be made to Mr. James Hoot, 16, Whitehall, London.

HOLLOW AND SOLID RAILWAY AXLES.—The PATENT SHAFT & AXLE-TREE COMPANY are prepared to supply either HOLLOW or SOLID AXLES, and, although the former have not yet come into use, the experiments they have tried enable them to state with confidence, that their patent made of manufacture (which includes Hollow Axles), combined with the use of a superior mixture of iron, will maintain the same superiority of character for their hollow as they have gained for their solid axles, of which latter they have now supplied upwards of 50,000, two only, made in the commencement of the year 1838, having been recently reported to them as having failed in use.
Brunswick Iron-Works, Wednesbury, Staffordshire.

DREDGE'S PATENT IRON BRIDGES.—This economical and powerful system of construction is founded upon the PRINCIPLES OF THE LEVER—therefore, it is adapted for the heaviest traffic of rail and other roads, and for the largest or smallest spans in all situations. It is not half so expensive as timber bridges, and, taking an average of large and small spans on the old principles of compression, this system admits of the erection of less powerful bridges for one, there being so much less material and labour in their construction. The Clifton Bridge, upon this principle, could be erected for £10,000. The principle was first used by the Victoria Bridge Company over the Avon at Bath, in 1836, in a bridge, 150 feet long and 19 wide. Afterwards, the Government adopted it in five bridges in the Regent's Park; and Sir James Colquhoun, Bart., used it over the Leven, in Scotland; this bridge is 324 feet long and 20 feet wide. Another is erected at Wraysbury, near Windsor, for G. R. Stevenot, Esq., and one across the river Fromet, for H. Miller, Esq. The elevation, plan, sections, and descriptions of Mr. Stevenot's bridge is published in the *Architect, Engineer, and Surveyor*, No. 56. It is 105 feet long and 17 broad, and its cost was less than the contracting for a stone bridge of the same magnitude.
*** J. DREDGE will undertake the construction of bridges, and guarantee their stability, and he will take shares in any toll bridges he may erect.
Bath, April 6.

IMPORTANT PATENT IMPROVEMENT IN CHRONOMETERS and WATCHES.—B. J. DENT, 82, STRAND, who obtained the high distinction of receiving the Government Reward for the unparalleled performances of the best chronometers ever submitted to twelve months' public trial, begs to acquaint the public that the MANUFACTURE of his WATCHES, CHRONOMETERS, and CLOCKS, is SECURED to him by THREE SEPARATE PATENTS, respectively granted in 1831, 1840, and 1842.—Silver Lever Watches, jewelled in four holes, £7 7s. each; in gold cases from £9 9s. to £10 10s. each.—Gold Horizontal Watches, with gold dials, from £9 9s. to £12 12s. each.—Dent's "Appendix" to his second work on "Time-keepers," is now ready for circulation.

PROCESS FOR PURIFYING AIR.—The PROPRIETORS of the INVENTION FOR PURIFYING ATMOSPHERIC AIR IN CONFINED PLACES, AND RENDERING IT FIT AT ALL TIMES TO SUPPORT ANIMAL LIFE, having secured their INTEREST in the same by LETTERS PATENT, invite public attention to the great advantages afforded by its introduction. The method of purification consists of two distinct processes, one of which is the abstraction of every portion of vitiated air or vapour from any confined place, and the other the replenishing such confined place with an equal quantity of pure air. These most important functions are performed by peculiarly simple and inexpensive arrangements, and require scarcely any degree of attention. The inestimable advantages of an atmosphere perfectly pure and salubrious, are, by this invention, secured to places which are either entirely, or in any degree, precluded from that purification which is produced in the air by ordinary means. This invention has already proved signally efficient in submarine and subterraneous undertakings, enabling workmen to conduct operations at great depths below the surface of the ocean, and in the galleries and difficult workings of mines, without communication with the atmosphere. It is, however, no less eminently qualified to restore the salubrity of the air in crowded apartments, such as theatres, courts of justice, prisons, hospitals, &c., and in underground places, such as cellars, vaults, wells, sewers, &c. The proprietors are now ready to treat with those parties who are anxious to avail themselves of the advantages of this invention, to grant licenses for its use, and to transact every business connected with its most extended application.—All further information in respect of this patent may be obtained by applying personally, or by letter, to Messrs. JOHN and ALFRED BLYTH, engineers, Limehouse, London, who have the exclusive direction of all matters relative thereto.
The following are testimonials in favour of the process:—

FROM JOHN FAREY, ESQ., CIVIL ENGINEER, &c.
67, Guilford street, Russell-square, London, 13th Jan., 1843.

Gentlemen,—As you have requested to know what opinion I have formed of the merits and practicability of Dr. Payerne's invention, during the investigation I have had occasion to make into the subject for enabling me to draw up the specification for Mr. Vigors's patent (of the 7th July, 1842) for that invention, I have no hesitation in stating, that, after a very full examination of all the circumstances, I have come to the conclusion, that it will be a very important improvement upon all previous means of carrying on submarine operations in diving bells, and of obtaining fresh air in mines, also in crowded and illuminated theatres, in courts of justice, and other public places; likewise on board crowded transport and passenger ships, also in hospitals, particularly hospital ships, and in ordinary apartments of sick persons—in short, in all cases where any reasons or any impediments prevent ordinary modes of ventilation being applied, or render such means inefficient as to the intended object of obtaining a continual change of air, and substituting fresh air for that which has become impure. The improvements will dispense with the necessity of changing the air, and will keep the unchanged air in a state of purity, by means which are simple, and, in my opinion, will be efficacious. In deep mines, which are worked out into long galleries, wherein gunpowder is used for blasting the rock, and where, in some cases, noxious gases are emitted from the strata, this invention will, I expect, be found particularly serviceable. The health of the miners will be preserved, and they will be enabled to perform their labour with vigour, by aid of the improvement, in situations and under circumstances which have hitherto presented great difficulties, delays, and expenses in mining operations.
I am, gentlemen, your most obedient servant,
To Messrs. John and Alfred Blyth. ——— (Signed) JOHN FAREY.

FROM DR. URE, F.R.S., &c.
15, Charlotte-street, Bedford square, London.

I have carefully perused the specification of a patent, recently granted to William Revell Vigors, Esq., for purifying vitiated air in mines, diving bells, and other confined places, and for rendering it capable of supporting respiration and combustion; and I hereby certify that the methods therein prescribed are founded in strictly scientific principles, are perfectly practicable, by no means expensive, and, when properly applied, sure of success. ANDREW URE, M.D., F.R.S., &c.
Professor of Chemistry, and Analytical Chemist.
To Messrs. J. and A. Blyth, Engineers, London.

FROM MAJOR-GENERAL PASLEY.
London, 13th September, 1842.

I do hereby certify that Dr. Payerne, a French gentleman, having repeatedly gone down in the diving bell at the Polytechnic Institution, where he remained three hours under water without communication with the atmosphere—a thing which I should have believed to be impossible if I had not seen it—I offered to afford him the means of repeating the same experiment at Spithead, in the diving bell made by my direction, to be used against the wreck of the *Royal George*, but which had not yet been employed there, because, contrary to my expectation, I found that helmet divers were much more effective, both in the demolition of the wreck, by placing charges to be fired by the voltaic battery, and also in the removal of the fragments. Accordingly, I met Dr. Payerne, by appointment, at Spithead, on the 2nd and 3rd, and afterwards on the 7th instant. I went down myself four several times with him, to the depth of from twelve to thirteen fathoms, or from seventy-two to seventy-eight feet of water; and Lieut. Hutchinson, of the Royal Engineers, the executive officer employed under me at Spithead, also, was down repeatedly; and we were both satisfied that the air purified by the Doctor's most ingenious and yet simple and cheap apparatus was perfectly good. Under this impression, I have since strongly recommended his invention to the Lords Commissioners of her Majesty's Admiralty, and also to the Master-General and Honourable Board of Ordnance, to be used in all their submarine works, such as blasting of sunken rocks, and building the foundations of wharfs or piers, &c., to be executed by the diving bell, in preference to the former method hitherto in use. The advantage of Dr. Payerne's invention is its superior economy. By the common mode of supplying the diving bell, a very powerful air-pump, to be worked by at least eight men, would be required at Spithead, which must be kept going incessantly during the whole time that the bell is down; because the air requires to be continually changed, without which the men in the bell could not exist. By the Doctor's apparatus, on the contrary, which purifies confined air without the necessity of changing it, by a very simple chemical process, a small air-pump only is required, to be worked by four men for about half an hour every time that the bell is let down, in order to expel the water from the lower part of it as it descends, after which no more pumping is required, even if it should remain twelve hours at the bottom. A case, measuring very little more than one cubic foot, may contain the means for enabling four men to live under water, with safety and comfort, for the time above mentioned; and the apparatus may be worked by a boy of twelve years of age. There are so many important works to which the diving bell must, of necessity, be employed in preference to the diving helmet, that I am of opinion that Dr. Payerne has rendered a service to the whole civilised world by his admirable invention; and I hope that his merit may not only be appreciated, but duly rewarded. (Signed) C. W. PASLEY,
Major-General, formerly of the Royal Engineers.

FROM LIEUT. HUTCHINSON, ROYAL ENGINEERS.
Spithead, 8th Sept., 1842.

My dear Sir,—It gives me great pleasure to certify to the merit of your valuable invention, for the generation of pure air in a diving-bell when under water, and without communication with the external atmosphere. As executive engineer under Major-General Pasley, I made several descents to a diving bell at Spithead over the *Royal George*, on the 2d, 3d, and 5th inst., for the purpose of trying your apparatus, and of ascertaining how far it might be beneficial to our operations, remaining under water from thirty minutes to an hour each time. The result was quite satisfactory. At a depth of thirteen fathoms, when I was dependent for existence on your purifying process, I found respiration as easy, and the atmosphere as agreeable, as under ordinary circumstances in the open air; on all other occasions in descending I have experienced great pain, but on those days I felt little or none. I am fully convinced of the value and importance of your discovery in all submarine operations carried on by the diving bell; the small space occupied by the machine, and the ease with which one person may turn the handle for working it, added to the saving of labour in working air-pumps after the air in the diving bell has become sufficiently condensed to exclude the water, are most important advantages, and I have no doubt of its proving equally incalculable under other circumstances, where the atmosphere may become vitiated and require purifying. I have also to add, that I saw Major General Pasley descend three several times on the same days, and heard him express his entire satisfaction and confidence in your valuable discovery, in which opinion a number of distinguished officers present, among whom were Admiral Sir E. Codrington, Major-General Sir Hercules Pakenham, Rear-Admiral Hyde Parker, Captain Sir Thomas Hastings, R.N., Captain Honeyman, R.N., Captain Hickerson, R.N., and Dr. Richardson and Dr. Lindsay, of Haslar Hospital, fully satisfied. Wishing you success in your future undertakings,
I remain, dear Sir, your's most sincerely,
(Signed) G. R. HUTCHINSON, Lt. R.E.

FROM ADMIRAL SIR EDWARD CODRINGTON, &c., &c., &c.
Portsmouth, 24th Sept., 1842.

Sir,—In answer to your application for my opinion of Dr Payerne's experiments, I am ready to say, that without pretending to any knowledge of chemistry, it appeared to me to be perfectly successful; and, under that conviction, I consider his discovery as likely to produce results of the very highest importance.
Your very obedient servant, EDWARD CODRINGTON.

FROM REAR-ADMIRAL SIDE PARKER, &c., &c., &c.
Portsmouth Dock-yard, 17th Sept., 1842.

Sir,—In answer to your letter, requesting me to give my opinion of Dr. Payerne's invention, I can only state, that I was a spectator more than once when Dr. Payerne descended, in company with Major-General Pasley, over the wreck of the *Royal George*, and Dr. Payerne's invention succeeded completely. Major-General Pasley and Lieut. Hutchinson are much better qualified than I can possibly be to give an opinion on the success of Dr. Payerne's experiments.
I am, Sir, your humble servant,
(Signed) SIDE PARKER, Rear-Admiral.

FROM CAPTAIN SIR THOMAS HASTINGS, &c.

Sir,—Be good enough to offer my compliments to Dr. Payerne, and to inform him that I witnessed his descent in the diving bell, from

the atmosphere had been removed, with deep interest. The bell, on that occasion, was lowered to the wreck of the *Royal George*, and the men observed three more seventy-one feet over it. General Pasley accompanied Dr. Payerne in this descent; they were twenty-two minutes under water, and on reaching the surface, and stepping out of the bell on the deck of the vessel, they appeared as fresh as when they entered it, and stated that no unusual inconvenience had been felt by them during the time they were in the diving-bell. It appears to me, that Dr. Payerne's invention of rendering air which is impure, fit for respiration, by so portable, and apparently so simple, an apparatus, must be considered a most valuable discovery, and cannot but prove highly beneficial to mankind, especially in reference to sub-marine and mining operations, and in all cases where it may be difficult to produce free ventilation.

I am, Sir, your's sincerely,

H.M.S. *Excellent*, Portsmouth, 17th Sept., 1842. (Signed) THOMAS HASTINGS.

FROM THE BOARD OF DIRECTORS OF THE ROYAL POLYTECHNIC INSTITUTION, LONDON.

This is to certify, that, on the 13th, 20th, and 27th of May, and the 8th of June, in this year, Dr. Payerne descended in the diving bell of our establishment, and remained submerged for upwards of three hours each time, thereby proving the success of an invention of which he is the author, and by means of which he continued for that time without any communication with the external air. We further certify to Dr. Payerne's receiving the approbation of eminent men of science in London, who were present at his experiments, and amongst whom we may mention Sir Wm. Gage, Sir George Seymour, and other Lords of the British Admiralty; General Pasley, Inspector-General of Railroads, Professor Faraday, &c.

By order of the board of directors of the Royal Polytechnic Institution, London.

Aug. 4, 1842. (Signed) ROBERT LONGBOTTOM, Sec.

FROM MESSRS. ADAMS AND MARTIN, ENGINEERS TO THE EAST AND WEST INDIA DOCK COMPANY.

East and West India Docks, 9th Aug., 1842.

Dear Sir,—I am happy to bear my testimony to the apparatus for purifying air, invented by you, having descended in the diving bell to a depth of twenty-one feet, and remaining under water thirty-five minutes, without the least inconvenience in respiration.

I am, dear Sir, your's truly,

(Signed) J. S. ADAMS.

Engineers' Office, East and West India Docks, July 29, 1842.

My Dear Sir,—I have much pleasure in testifying to the success of the trials made in the diving bell, with your means of making the air respirable, without communicating with the external air. At the time of my descent I felt less inconvenience than when we are at ordinary work, and the workmen who have also descended state the same opinion. It is certain that you have been quite successful in accomplishing the desirable objects in all subsequent operations of affording pure air, and keeping it in this state for a considerable space of time.

I am, dear Sir, your's faithfully,

(Signed) H. MARTIN.

FROM THE ROYAL FOLKESTONE CONSOLS MINES, ST. AGNES.

Mr. Hardiman, the gentleman who made several experiments with Dr. Payerne in the diving bell, over the wreck of the *Royal George*, at Spithead, has been trying other experiments at Royal Folkestone Consols Mines, in St. Agnes, with the newly-invented method of purifying the air. The experiment was made at a depth of about 700 feet below the surface, and where the air was previously so vitiated, that no person could approach the place (a rise of nine fathoms above the level). A powerful air machine, attached to the engine-rods, was put to work some time ago, which barely afforded air for three men, with candles, to exist. The method of purifying the air was brought into action after this air machine had been thrown out of use, and although there were at that time no less than fifteen men, with candles, in the rise, the air, in ten minutes, was so renovated, that all breathed with comparative ease; the improvement was even visible, inasmuch that three candles, which were, until then, with difficulty made to burn, ten or more now burned freely. As a further test, two holes were blasted, and under the old method no man could approach the top of the rise until half an hour after the explosion, and in some cases longer, but the machine so quickly dissipated the smoke, that, in four minutes, the men were at their work, breathing air comparatively pure, and refreshed with the additional advantage of being as cool as at the surface, although there was, as before stated, fifteen men in the rise.

We, whose names are hereto affixed, are happy to bear testimony to the success of the experiment herein described.

(Signed) JOHN STEPHENS, JOHN BOND, JOHN NANCE, THOMAS NANCE, JAMES G. LETCHER, JOHN BENNETTS (his mark) ✕, SAMUEL EDDY (his mark) ✕ } Working miners.

PETER FLOYD, Captain.
NICHOLAS DUNSTAN, ditto.

CAPTAIN BEADON'S LIFE BUOY IMPROVED.*

[We are indebted to Captain Beadon for the following copy of a letter, addressed by him to the Secretary of the Society of Arts, and read before the Society.]

Sir,—I beg to send an improved model of my life buoy for the inspection of the society. You will observe that it has the following different arrangements:—Two oars are attached by universal joints at their ends. The light line has a spiral brass spring. Two mast ropes are added. By this novel application of the oar, it can be used in any seaway with ease; the person using it will face in the direction he is going, and he has his strength applied in the most advantageous manner. The brass spring pressure the fan-line closely into its cover, thereby preserving it from wet, affords facility to inspect it, and to attach the buoy to the storn; and, when disengaged, gives elevation to the light by its expansion, and occupies less room when collapsed. The "mast ropes" will afford a person an easy and effectual means of securing himself from being washed off. Thus, if it be necessary to send a seaman to the *roof* with a line from a stranded ship, it will be next to impossible for him to be washed off, and, if necessary, he can disengage himself in an instant, without "cutting;" these ropes are handy for securing another person whom he has picked up. It will be easily seen, that many modifications of this apparatus can be effected according to the purpose required. For instance, the oars can be secured by any seaman with rope. The eye-bolts in the extremities, formed of "thimbles," seized into a rope grommet passing round the buoy. There is nothing in the construction which ship's artificers cannot make on board. Other buoys, with more outriggers, oars, seats, and of larger dimensions, and with shapes better adapted for speed, might be made, but having sealed through most expensive experiments, I presume to say, no method of propelling for this purpose will improve upon the simplicity and effectiveness of the oar, thus arranged. It has been observed, that a man would be too exhausted to use the oar; my answer is, if he has strength to reach it, he will have strength to ply it; many a hapless mariner has reached Cook's equilibrating invention, and clung to it for hours with inevitable death before him. Having had the misfortune, together with seventeen others, to have been more than fourteen hours in the water, off the island of Lantin, in China, during a tempestuous night and part of the following day, in April, 1841, I will state, for the benefit of others, the good which results from exertion:—

The vessel, a Chinese fast boat, founded at her anchors during a heavy squall, and left us clinging to her starboard gunwale, but wholly in the water; the oars, hatches, and different articles, kept floating up, and were driven against us with great violence, and were soon carried away by the tide, which was opposite to the direction of the wind. As the vessel became less buoyant every minute, and expecting she would soon go down as the air escaped, I urged the men to assist me in providing for such an emergency, by lashing with the boat's sheet all we could. I could not induce any of them, except Robert Smith, ordinary, and Thomas Allen, boy, both of his Majesty's ship Cleopatra, to do so. By great exertion we contrived to collect a considerable bundle, sufficiently large, as it eventually proved, to support six of us, including four who could not swim, for many hours. About daylight the vessel's mast touching taken the ground, she was swept for a time under water, when, providentially, her hatches fell out, and she floated bottom up. For a time all were swimming for their lives. Mr. Edward Turnour, of the Cleopatra, approached us on the bundle, but, at my request, swam to the rudder, floating a long way off. I mention this noble act of abnegation, to show that it was not a lack of gratitude which exasperated the others, but a mistaken notion of saving their strength, as they answered my orders by entreating me not to "waste my strength so." By the aid of a sweet grass, used as a pedicle, we righted our assailants on the jack's bottom on the turn tide, having been carried miles from them. In short, when picked up, all, save Smith, Allen, and myself, were exhausted, and the remainder so helpless as to have from cold and cramp produced by immersion. For myself, except being hungry, I never felt better. A cup of hot lemonade to exertion, and that has hopefully adopted the brake of man for all emergencies, if we avoid exercises of these powers and means. Through the winter of 1840, I was in the habit of jumping into a canal with clothes on, and, from exerting myself to trying plans for propelling, I never took cold.

J. Beadon.

Wood Paving.—It was resolved, at a meeting of the Commissioners of Sewers, at the Guildhall, on Tuesday last, that Chapside should be paved with wood.

* From the Mechanics' Magazine.

DREDGE'S IMPROVED SUSPENSION BRIDGE.

Fig. 1.

Fig. 2.

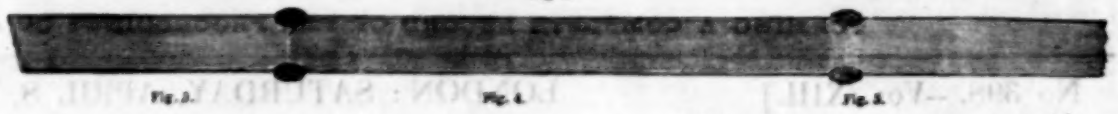
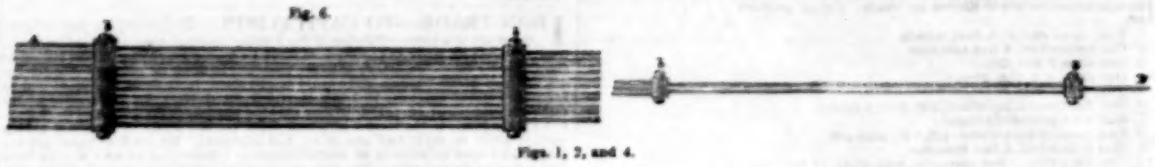


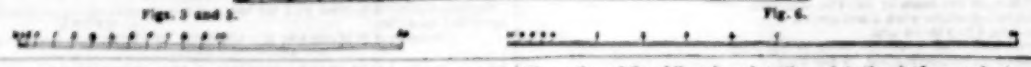
Fig. 3. Fig. 4. Fig. 5.

Fig. 6.



Figs. 1, 2, and 4.

Figs. 3 and 5. Fig. 6.



TO THE EDITOR OF THE MINING JOURNAL.

Sir,—In the expectation that it will prove of interest to your readers, I have sent you the subjoined drawings and paper, the subject of which is a description, and specification of the materials, &c., of a suspension bridge I erected in the winter of last year, at Balloch Ferry, Dumbartonshire, for Sir James Colquhoun, Bart.

Fig. 1. Represents a longitudinal elevation of the bridge.
Fig. 2. The plan.
Fig. 3. An enlarged longitudinal section of the platform.
Fig. 4. A transverse elevation of the towers, with section of the roadway; also showing the formation of the suspending chains.
Fig. 5. A transverse section of the platform.
Fig. 6. A plan of the main suspending chain, showing the construction of the joints, and the mode of tapering or reducing towards the centre.

(The same letters refer to the same part in each figure.)

The total length of the suspended roadway is 293 feet; but, as a space of 46 feet is left on the outside of each of the towers, the centre span is reduced to 200 feet. The height of the towers for supporting the chains, above the roadway, is 21 ft., which is equal to the *versed sine*, or deflection of the chains.

A B A the main chain of support; *c c c*, &c., the oblique rods, to sustain the platform, and connect it with the chains at the joints, *b b b*, &c. The mode of fastening the lower ends to the platform is seen on a larger scale in figs. 3 and 5, where the oblique rods, *c c*, pass through the circular castings, E E, and are secured on the under side by a nut and screw; these circular cast plates are firmly fastened to the beams, D D, which pass throughout from end to end, one on each side of the bridge; to these beams all the oblique rods to convey the weight to the chains are attached; also, by means of the cast boxes, F F, &c., the transverse wrought-iron joists or beams (one is seen in fig. 5, marked G) which pass under at right angles, and immediately support the platform, are connected. These beams are 2ft. 3in. apart; every third beam is trussed with a suspension truss, in the manner shown in fig. 5—that is, by bringing the tension bars, I I I, beneath the platform, and jointing them at the points, H H, where the beams, H and H, which pass under and abut the transverse joist, G, rest. One of these is seen in longitudinal section, fig. 3, and both are marked out transversely in fig. 5; they run parallel with the beams, D D, the whole length of the bridge, and are very serviceable in strengthening the roadway transversely, as they support the joists, G, at two intermediate points, and thereby reduce the length between the bearings from 20 feet (the whole width of the roadway) to 6ft. 8in. All along the central line of the transverse beams, about six inches asunder, are 11-16ths holes pierced, through which 5 8ths rods pass, and run parallel from end to end of the bridge. It has been stated above that there is an opening of 46 feet on the outside of each of the towers; the platform here is attached to the chains, and supported in precisely the same manner as in the centre span, just described. The back or mooring chains, A C, for covering the bridge, are carried to the same distance as A B over the stream, and, from the extremity of the chain at C to the centre of the tower, is just 100 feet, equal to one-half the span of the bridge. If 46 feet (the length of the suspended roadway between the towers and the embankment-wall) be deducted from 100, it will leave 54 feet the distance which the mooring chains extend on the land; in this 54 feet there are fifteen oblique rods to each chain, and every one of them secured to large blocks of stone, firmly embedded in the masonry, and, as there are four chains in all, there are, consequently, sixty points thus fixed. The oblique rods are carried out in the same way, and in the same angles, to the back stay chains, as in the bridge over the stream; therefore, each of them that are fixed in the ground, from acting in a diagonal direction, assist in supporting the bridge, so that, independent of the opening, which balance 92 feet, there are sixty points at which the mooring chains are attached, to secure the safety of the bridge. The railing is made as shown in the drawing, having cast standards fixed at every other beam, and wrought-iron three quarter bars passing through them.

Specification of Materials, &c.—The length of centre span has been stated above to be equal to 200 feet, and the roadway on the outside of each tower is suspended to the extent of 46 feet; the breadth of the platform is 20 feet. Each pier for supporting the chains consists of two octagonal towers of masonry, which taper from 15ft. 2in. by 9ft. 2in., at their foundation, to 9 feet by 3 feet at the top, the largest dimensions being in the direction of the bridge. They are connected together, transversely with the bridge, by a light arch across the roadway. The height of the towers above the water level is 37 feet—viz., 16 feet from the surface of the stream to the upper line of the roadway, and 21 feet from the roadway to the top of the towers. On each side the foundations are made about five feet below the water-mark. All the masonry is built of a reddish freestone, from Bonhill. Upon the tops of the towers are large cast-iron plates, on which the chains rest; the chains for supporting the structure are formed of seven-eighth round bars, laid side by side, to the number of thirteen, upon the tops of each of the towers, and successively dropping one at each joint, until it arrives at the centre of the bridge, where that part of the chain is reduced to a single bar. The bars upon the towers are 6 feet long, but, after springing from thence, they are increased to nine feet."

The quantity of wrought-iron used in the structure is—

In the chains	lbs.	13974
Oblique suspending rods		6300
Longitudinal beams		5423
Transverse joist, truss, &c.		11301
Two hooks		4704
5th rods running through transverse joists		11420
Keying, &c.		6400
Sundry articles not specified		1400
Total	lbs.	60522
Or	27 tons 1 cwt. 3 qrs. 26 lbs.	
The quantity of cast-iron is about	4 11 0 0	

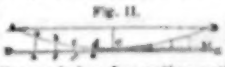
"The timber for the platform was grown on Sir James Colquhoun's estate at Luss, and about 7480 cubic feet was used."—It is inch &c.

The bridge is calculated to sustain a permanent load between the towers of about 600 tons, or 1 cwt. per square foot. The absolute, or extreme, power of the chains, exceeding the iron at 12 tons per square inch, is upwards of 600 tons.

As my descriptions of the principle upon which the bridge is built has not yet occupied much space in your Journal, I am induced, without entering into any mathematical details, to add to the above a slight sketch of it. The plan may be stated to consist in so arranging the entire supporting parts of the bridge, that the strain, or tension, in the main chains may gradually diminish in magnitude from each point of suspension to the centre, where the tension, in fact, becomes entirely evanescent. To effect this, it is necessary that those bars which convey the transit load and permanent weight to the chains, and which have, in every other plan, been placed vertically, should be continued to the plane of the horizon, in angles ranging in magnitude from the towers of support to the centre of the bridge; the extent of this variations, and the magnitude of the several angles, it is not necessary here to discuss. It is in consequence of this arrangement of the subsidiary bars into an oblique instead of a vertical position, that the advantages of this system are obtained.

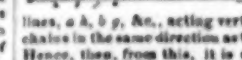
The action of the oblique bars is to throw into the platform, or horizontal line, the whole of the horizontal force, which, when the vertical subsidiary bars are applied, is resisted entirely by the chains. The mode of action may be traced thus:—the weight, or gravity, of the platform, &c., acts vertically with respect to the horizon, and in the same direction as the vertical subsidiary lines, and, as action and reaction are equal and contrary, so, when these bars are used, the strain, or tension, in them must be precisely the same as that portion of the weight they respectively support. If weight be sustained in any other position than vertical, it must be by the joint action of at least two forces, the resultant of which is equal, and in an opposite direction to the weight supported; also, the resultant of the weight, and either one of the forces, must be equivalent to, and in the direction of, the remaining force. Now, it is evident that the chain, from hanging in a pendant curve, cannot sustain any weight in the direction it acts, and therefore every point of the curve must be acted upon by three forces, all of which tend to that point, and keep it in a state of balanced rest. One of these is weight in the direction of gravity; another is the horizontal force before spoken of, and is a constant quantity, acting at every part of the curve in a horizontal direction; the remaining force is, of course, the resultant of the other two. What I mean may, perhaps, be better understood by being illustrated thus:—

Fig. I.



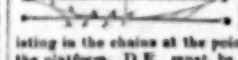
Let A B be the points of suspension of the curve, A C B, hanging, that the whole may be in equilibrium. It is evident that one-half, A C, precisely balances, at the point C, the other half, B C; and, if either of these portions were removed, the other would directly adjust itself in a vertical position. Let one half B C be removed, but suppose the other half to be prevented regaining the vertical position, by a force applied at the point C, in the direction C M; make C M the measure of this force, and it will be the measure of the tension at the point C, or vertex of the curve, and to the horizontal force above alluded to, as the constant quantity acting in that direction in every part of the semi curve. Take any point, *b*, and the tension at that point is equal to the resultant of the force, C M, and the weight of that portion of the curve, *b* C, acting in the direction of gravity, and at the point of suspension, A, it is equal to the resultant of the same force, C M, and the weight of the semi curve, A C.

Fig. II.



If the platform, D E, be attached to the curve with vertical bars, as in fig. II., the same effect as exhibited above will still be produced, for this reason—viz., that, from the lines, *a b*, *b g*, &c., acting vertically, there is the same weight conveyed to the chains in the same direction as though there were no intervening subsidiary bars. Hence, then, from this, it is manifest that the whole of the horizontal force must be resisted by the chains at every part of them; and that, at the centre, the section of iron there must be sufficient to overcome the tension caused by it. On the other hand, if we turn to the instance, fig. III., where the oblique

Fig. III.



bars, *a b*, *b g*, &c., are applied, we shall, by examining their particular mode of action, see that the constant horizontal force, C M, does not obtain; nor is there any tension at all existing in the chains at the point, C; and, for this reason, the whole weight of the platform, D E, must be conveyed to the chains by means of the oblique rods connected thereto for that purpose; each of these bars will sustain, and convey to the curve, its proportion of the weight. Let us instance the one, *d e*, and trace the effect of it on the system in sustaining that proportion of the weight acting at the point *e*. Now, the line, *d e*, is in an oblique direction with the horizon, and different to that in which the weight acts, therefore, in order that it may sustain that weight, it must be acted upon by two forces at the point *e*; one of these is the weight, the other is the horizontal force, in the direction D E, consequent upon that weight being supported at the angle *d* e D, or otherwise than in a vertical direction. Now, the point *e* is situate in the platform, and therefore the horizontal force induced there must be resisted by it, and cannot be carried into, or effect, the curve beyond the point *d*, towards C. The action of any other bars may be examined in the same manner: for instance, the tension in *e f* is induced by the action of the weight supported at *f*, and the horizontal force generated by that weight being resisted in an angle of less than 90°, and, as the point *f*, to which the various forces tend is in the horizontal line, the horizontal force acting there must be resisted by the platform, and cannot produce any effect in the chains beyond the point *e*, and so on for the remaining bars, *b g*, *a b*—the weights suspended at the points *g* and *b* generating no horizontal force in the chains beyond the points *b* and *a*, the truth of which may be demonstrated in the same way as in the bars just instanced. Therefore, it follows that though, with the use of the vertical suspending rods, the variation of tension, and, of course, the required proportionate variations of sections of iron in the chain, is so very inconsiderable as to be hardly worth notice; yet, when the oblique bars are applied, the tension in the chains is reduced rapidly, from the base to the centre of the bridge, and, of course, in the same proportion, may the section of iron in them vary also.

The valuable assistance which the oblique rods give to the stability of a bridge may be understood by the following experiments:—Cut the chains in the middle, the bridge will stand as firm as ever, there being no strain there; then cut the platform in the middle, and the bridge will be separated into two independent brackets, each supported by the chains, and the strength of the horizontal line, against the abutments. The force required to resist this tendency is a measure of the power conferred upon the bridge by reason of the oblique rods, independent of the advantages gained by tapering the chains. On the other hand, cut the chains of a common bridge at the centre, and it will destroy the structure; or cut the platform in the middle, and leave the chains entire, then it will be seen that there is no tendency of thrust against the abutments, nor any horizontal power in the platform, and that it is the chains only which sustain the whole structure. In a chain or rope, hanging in a pendant curve, this cannot be avoided; but in the case of a bridge which consists of curved and horizontal lines, it is clear that the vertical and horizontal forces should be divided; for it is enough for the chains in any bridge, in their position of reduced power, to support themselves, the platform, and the transit loads; besides, it is very clear that the horizontal force should not exist in the chains, to operate to their destruction—but in the platform, where it cannot act in the direction of gravity, but where it is so essentially powerful for the support of the structure as to the strength of the chains. This is evident from the fact that, in large spans on the ordinary principle, it has always been deemed advisable to strengthen the platform, and further to add to it by deep and heavy framing, for the purpose of giving additional stiffness to the structure—in short, to put a strain on the platform that would compensate for the horizontal force that ought to be there, which is so beautifully and effectually maintained in that line by the action of the oblique rods. Also, from the greater stability of the structure, and the lesser surface it exposes to the action of the wind in a storm, a bridge built on this principle is not liable to sustain the rent upon the piers of the centre, where the roadways merely hanging, vertically, to the curve, whose equilibrium is effected, and the structure set in motion, by the slightest force.

James Dredge.

Bath, March 31.

COAL-FIELDS OF GREAT BRITAIN.—No. VII.*

MID-LOTHIAN COAL-FIELD—MIDDLE SERIES.—CONTINUED.

26. LIMESTONE.—In the former part of this article we described the upper, or newer, portion of stratification of this important district, and enumerated no less than twenty-five seams of coal as overlying the first, or upper, limestone of Calcoats. This limestone is of marine origin, and is of a bluish or grayish colour. It is seen on the shore at Joppa, with above 600 feet of stratification interposed between it and the thin seam of coal, No. 25, formerly mentioned. Here, as also at Magdalen-pans, Gilmerton, it measures three feet thick. Its distance from the lowest upper coal at Magdalen-pans is 450 feet, and at Gilmerton only 246 feet.

The want of limestone and marine remains, in the upper series, seems to justify us in concluding that this series is contemporaneous with the upper coal series of the Lanarkshire basin; and the occurrence of three marine limestones in the central portion of each, with an extensive coal formation underneath, apparently justifies the conclusion. The number and conditions of the coal-beds of each differ, but the analogies are so striking as to leave no doubt on our mind of the contemporaneousness of deposition, notwithstanding the belief expressed by Mr. Bald, and assented to by Mr. M'Laren, of the upper, or flat, coal, having been deposited after the under, or edge, coal had been tilted into its present inclined position—an opinion of which no sufficient evidence is afforded. It is very much to be regretted that due attention has not been paid to the organic remains of this portion of the system, as by these the analogy, which we suppose to exist between the eastern and western deposits of the great coal-field of the Scottish Lowlands, would, we doubt not, be completely established. The Roslin, or upper, series bears much resemblance in its lithological structure to the upper portion of the coal series of Lanarkshire; both contain red sandstone, and the principal difference is, that the red sandstones of the west country do not contain so much coal as those of the east.

27. COAL.—This is a thin seam, seventeen inches thick, occurring at Joppa shore, twenty-four fathoms four feet below the Calcoats limestone. The distance, however, at Gilmerton, is only three and a half fathoms. The thickness is nearly the same; but in New Mills level it is two feet five inches. It is needless to observe that in the two former situations it is too thin to be workable with profit.

28. COAL.—This coal is also too thin to be workable to advantage; at New Mills level it is twenty inches thick, but at Joppa, Magdalen-pans, and Gilmerton, it is not more than six inches. The distance at New Mills and Joppa is from twelve to thirteen fathoms, but at Gilmerton and Magdalen-pans it is from twenty-five to twenty-six fathoms.

29. ALLAN'S COAL.—At Bryant's and Joppa this is a two feet seam, but at New Mills and Magdalen-pans, it is only six inches thick; at Gilmerton it is fourteen inches, and lies six fathoms four feet below No. 28. At Joppa, Magdalen-pans, and New Mills level, the distance is from three to four and a half fathoms. At Bryant's, the distance of this seam from the Calcoats limestone is ninety-one fathoms.

30. COAL.—This is a very thin seam, never measuring more than fourteen inches thick, and only six inches at Joppa, where it occurs nine feet below No. 29. The distance at Magdalen-pans and New Mills level is four and a half and five fathoms.

31. COAL.—This is only known at Joppa, and is six inches thick; it occurs about eleven fathoms above the second limestone, which lies above a hundred fathoms below that of Calcoats.

Here we have a stratification of more than a hundred fathoms interposed between the two upper limestones, containing only five insignificant seams of coal. A similar paucity of coal is met with in the equivalent portion of the Glasgow basin; and the other deposits are not so numerous—the distance between the upper and the second limestone being only about thirty fathoms, and the coal seams only three in number.

32. SECOND LIMESTONE.—This limestone is of nearly the same quality as the former. It varies in thickness from two to three feet. At Gilmerton it lies about twenty-nine fathoms below Allan's coal (No. 29); and at New Mills level, eighteen fathoms below No. 30. At Joppa and Gilmerton it is three feet thick, but at Dryden, New Mills level, and Magdalen-pans, it is only two feet thick.

33. COAL.—The first seam of coal underlying the second limestone is called the wood, or splint, coal. It is wrought in several places. At Gilmerton it is five feet thick; but it only measures about three feet at Joppa, Duddingston, Niddry, Loanhead, and Bryant's; at Arniston it is reduced to three inches; at New Mills level it is one foot nine inches thick. The distance from the second limestone is from ten to twelve fathoms.

34. COAL.—This seam is said to lie about eighty-four fathoms below No. 33, at Duddingston, where, as at Niddry, it is two feet four inches thick. At New Mills the distance is only thirty-three fathoms two feet, and the thickness is eight feet. The other distances are exceedingly various, but the thickness is generally about three feet. It occurs at the following collieries:—Niddry, Gilmerton, Cowden, Loanhead, New Mills level, Bryant's, Arniston. It is the upper coal at Cowden.

35. THIRD LIMESTONE.—This limestone, like the others of the group, generally varies from two to three feet in thickness, the only exceptions being at New Mills level, where it is four and a half feet, and at Walliford, one foot eight inches. The distance from No. 24 varies from seventeen to twenty-four fathoms. It is met with in these conditions at New Eldin pit, Gilmerton, Loanhead, Preston Grange, Walliford, New Mills level, Bryant's, Arniston, and Stobhill.

These three limestones, with their associated strata of sandstone, shale, &c., constitute what may be termed the upper marine limestone series. The number of limestones is the same, and the extent of the stratification contained between the upper and lower beds differs so little from the same series in the Lanarkshire field, that the aqueous conditions appear during the time of deposit to have been nearly the same—the principal difference in this, as in the other divisions, being the greater quantity of carbonaceous matter in the Mid-Lothian basin, from whence we may infer a considerable dissimilarity in the extent of the vegetable products of the land.

That coal was derived chiefly from land plants, or plants which grew in marshy situations, is abundantly evident from the remains of plants contained in the imperfectly formed coal, which usually occurs in the lower and upper divisions of a coal-bed; but whether these plants vegetated on the spot where the coal derived from them is found, is a problem which geologists appear not yet to have completely solved. This is a subject into which, however, our limits in these descriptive essays will not allow us to enter; we shall, therefore, treat of it separately in our geological department, when we come to speak of the carboniferous formation in general.

[To be continued in an early Number.]

* Continued in the Mining Journal from the Glasgow Practical Mechanic.

SMOKE NUISANCE.—On the minute in reference to this subject being read, at the monthly meeting of the Birmingham Street Commissioners, Mr. J. Cadbury expressed his satisfaction that breathing time had been given to the owners of steam-engines before compulsory measures had been adopted with respect to the consumption of smoke. He was the more gratified at this, as within the last week he had received very important information from a friend of his who had discovered a plan for consuming the smoke of steam-furnaces, more simple, more effective, and far less expensive than any plan which he had yet heard of; and it was probable that before their next meeting he would be able to point to some instances in their own town in which it had been tried. The parties who had made the discovery were willing that the public should have the full benefit of it, free of all cost; and in the communication he had received from them they said—"We have effected the combustion of smoke at our mill by a very simple and inexpensive process. We send herewith a rough sketch of our furnace and boiler, with an outline of the plan adopted, which has ever since admirably well. It has lessened the furnace room nearly one-half, greatly reduced the consumption of coal, and improved the draft. We give it to the world free of expense, and shall, at all times, be glad to exhibit it to parties desirous of seeing it." Mr. Cadbury said he had those plans in his possession, and should be happy to show them, and give every explanation in his power to any gentleman who might feel interested in the subject. For himself, he could say that he had seen sufficient of the working of the plan to strongly recommend persons to postpone the adoption of other means for consuming their smoke until they had tried it. He did not say this with the view of detracting from the merits of other inventions; but the great merit of the discovery he referred to was that it accomplished the object proposed at one-fourth the expense of any method hitherto adopted.

TELEGRAPHIC COMMUNICATION.—Mention is made in accounts from Germany of the discovery of a new telegraphic means of communication, adopted on the Upper Silesian Railway, with very successful results; its application seems to be most valuable at night, and its activity in fine times greater than that of the ordinary telegraphs. The expense, on the other hand, is represented as very trifling. It having been estimated that the several trials made upon the occasion in question did not cost more than two silver groschens, or about three-pence. Every improvement of this kind is important, as increasing the safety of railway travelling.

MR. VIGERS'S PATENT PROCESS FOR PURIFYING AIR.

A very interesting experiment was yesterday made at No. 3, Alderman's-walk, Bishopsgate, illustrative of this valuable process, in the presence of several gentlemen largely interested in mines, and others of great scientific attainments, which was conducted by Messrs. Blyth, engineers, of Limehouse. The apparatus consisted of a purifying machine, in an air-tight box, communicating, by means of a small tube, with a vessel containing oxygen gas. The tube was provided with a stop-cock, in order to admit or exclude the oxygen. A lighted candle was placed in the box, which was hermetically sealed, and the supply of oxygen cut off. The candle thus burned for three minutes and a half, and then went out. The box being opened, and the candle re-lighted, the same experiment was continued until the candle was on the point of expiring, when the machine being put into operation, and a small quantity of oxygen admitted, the candle at once resumed its original appearance, giving out a healthy flame, which continued for some time, and the experiment was repeated until every gentleman present expressed himself unequivocally satisfied with the utility and importance of the invention. Some oxygen gas was generated in the room, to show the facility with which it might be done—indeed, it appeared easy to generate this gas in a table spoon over a candle. The principle thus established is an elucidation of a well-known fact, that where the air is sufficiently pure to support combustion, it is also capable of supporting life, and the experiment shows that persons can breathe freely, by means of this apparatus, in the levels of mines, without the customary air-shafts, where, otherwise, the work must be discontinued for want of air. That this principle is of great consequence to the mining interest must be apparent, and our advertising columns will show how its value has been appreciated in this and other respects.

We were glad to see the respected member for Truro (R. Turner, Esq.) present at the meeting, and taking an interest in the experiment, thus affording another instance of his readiness in identifying himself with the general and local interests of Cornwall. There were also present Messrs. W. R. Vigers, Grout, Pike, Stainsby, Hodgson, Thomas, Sympson, Beckerleg, the Count de Crouy, and many others, with whose names we are unacquainted. Altogether, the experiment was one not only of an interesting but highly satisfactory character, and as such admitted by all parties present. We purpose, next week, entering more fully upon the subject, with a description of the process, as communicated through the specification, as well as the result of personal inquiries and observations.

ON THE TIN MINES OF TENASSERIM PROVINCE.

BY PROFESSOR FORBES ROYLE.

The author prefaces his memoir by a view of the ancient history of the metal, especially as regards India, and gives an account of the tin mines of Banca, and the peninsula of Malacca; describing the native processes for washing and smelting the ore. The British provinces on the coast of Tenasserim contain about 30,000 square miles, having a north and south range of mountains for their eastern boundary. The mineral products of these provinces are tin, iron, and coal. The north and south range is stated by Dr. Helfer to be composed of granite and gneiss, and the northern and middle parts of the country to consist of transition slates and limestones. The country south of the Moulmain River, the province of Ye, towards Tavoy, is a sterile slate district, covered with bamboo. Amherst province presents isolated ridges of limestone, with fertile land at their bases; to the south are sandstones and conglomerates. Tertiary formations, chiefly argillaceous, occupy the higher parts of Amherst and Ye provinces, the plains of Tavoy and Kalliconny, those between Tavoy and Poilon, the valley of Jaunbrauk, and of the Tenasserim River, and the elevated land of Meta-Mio. In 1837, Dr. Helfer discovered tin near Lake Saulret, about 110 miles N.N.E. of Moulmain; and, in 1840, he reported the country to the north of the Pekahan River to be the richest staniferous district within the Tenasserim provinces; the ore is formed in the débris of primitive rocks, and the range is stated to be a continuation of the Siamese tin district of Binoung. Domel Island, and the banks of the Boukpeer, are also cited as localities yielding tin; in fact, tin is of very common occurrence in the southern parts of Tenasserim, and, probably, its richest deposits are yet unknown. Captain Tremenheere's account of the tin of the Tenasserim provinces is, that it occurs chiefly in the beds and banks of those rivers which issue from the primitive mountains on the Shengdon River, in the immediate vicinity of the coal mines, on the Great Tenasserim River. 11,889 grains of peroxide of tin were collected in an hour and a half. Along the course of the streams which flow into the Little Tenasserim River, it occurs in thin beds, in gravel; and Capt. Tremenheere calculated, from a short trial he made, that two men could obtain, by washing the gravel, about 9 lb. 2 oz. 464 gr. of tin per day, at the cost of twelve anas, including the expense of reduction, which is extremely simple, and requires only charcoal—easily obtained from the abundant forests. At Kohan, on the right bank of the Great Tenasserim River, eleven miles from Mergui, Captain Tremenheere found a vein of tin, about three and a half feet wide, nearly vertical, and enclosed in a white decomposing granite rock. The ore is described as equal to that from Banca. It is conjectured that tin may ultimately be found in the small isolated granite hills which rise out of the alluvial plain in the neighbourhood of Kohan.

INSTITUTION OF CIVIL ENGINEERS.

APRIL 4.—WILLIAM CUBITT, V.P., in the chair.—The paper read was by Mr. D. Mackain (engineer of the Glasgow Water-Works), giving an historical account of the various plans projected and executed for supplying that city with water. In commencing, the paper referred to the year 1705, at which period Mr. Gibson, in his history of the city, noticed the want of fast pavements, street lights, and a supply of water, &c., which was, at that time, drawn from wells in the streets. In 1720 it was proposed to bring for the supply of the whole city the water of a spring which is now found inadequate to the wants of a house of refuge since erected near it; at that period many plans were proposed, particularly one by Mr. Henry Bell (who subsequently introduced steam navigation to this country); he objected to steam-engines for pumping up the water, "because they would be a nuisance, and hurtful to surrounding property, and their consumption of coals would increase the price of fuel in the city." Mr. Telford was consulted, and, on his recommendation, two steam-engines were erected, with reservoirs, &c. His estimate of the requisite supply for a population of 80,000 persons was 500 gallons per minute, supposing that 6000 families would become renters, and the produce, at 2l. each family, would be about 12,000l. per annum. The population in 1842 was 300,000, and the annual income was about 90,000l., making the average payment about 9s. per annum for each family. The history was then given of the gradual increase of the works until they consisted of thirteen steam-engines, with their requisite filters, reservoirs, &c.; the fluctuation of the mercantile value of the shares, and the purchase of the Cranston Hill Water-Works—thus centering the whole supply in one company. The facts detailed were valuable for reference, and interesting as history. An appendix, containing an account of the reservoirs and filters, was promised for a future occasion.

The monthly ballot for members took place, when the following gentlemen were elected:—Messrs. B. Cubitt and S. Hall, as members; Lieutenant-Colonel Colquhoun, Messrs. W. Thompson, M.P., A. A. Croll, W. T. Grant, G. Snell, J. F. Porter, and G. Mills, as associates.—The following papers were announced to be read at the meeting of Tuesday, April 11th:—"On the Supply of Water to the Island of Malta," by W. L. Ainsworth, Assoc. Inst. C.E.—"Description of the Artesian Well at the Abbattoir de Grenelle, Paris," by Sir John Robison, K.H.—"Description of the Water-Pressure Engine constructed by Henr Bessdel at Freyberg, for the Alte Morgegrufe Mine, by W. L. Baker, Grad. Inst. C.E.

CORNISH ENGINEERING.—The account we gave last week of the 144-inch steam-engine now making at Hayle, for the Government of Holland, was substantially correct, the only inaccuracies being, that the lower cylinder is 94 inches diameter instead of 90, as we stated, and that there are only four piston-rods to the large piston, instead of five. It is quite correct, as we supposed, that the 144-inch piston is perforated in the centre, to allow the 90-inch cylinder to stand in it, and will work between the inner and outer cylinders. The small cylinder (if so 90-inch deserves that name) will be turned outside. The great piston-rod, when turned, will be twelve inches diameter. The four piston-rods of the 144-inch piston are each four inches diameter. The piston and will weigh eighteen tons! There will be eleven beams, each thirty-two feet long. The pumps will be ten feet, and the cylinder 12 ft. 6 in. long. The length of the stroke will be ten feet, and the engine will work six or seven strokes a minute, lifting a hundred tons of water every stroke! At this rate, it would empty a pond 200 feet square, and eight or nine feet deep, in twenty four hours. The large cylinder will be cast altogether, as other cylinders usually are. A cylinder was lately cast at the Copperhouse Foundry of 144 inches diameter, for a blowing machine erected in Wales, but that was cast in two parts. The present is the first occasion of casting such an enormous cylinder entire. When the engine is in a more advanced state, we shall give a full account of all its parts and manner of working.

IMPORTANT MINING CASE—GREAT WHEAL PROSPER.—An action (Clouter v. Francis and Trevethan) has just been tried in the Stannaries' Court, to recover the sum of 3289l. 18s. 7d., with interest, of the defendants, as shareholders in the Great Wheal Prosper Mine, being the amount advanced by the Western District Banking Company, for carrying on the mine. In the course of evidence, elicited in a long cross-examination, it appeared that the account had been kept open entirely by acceptances—originally, two of 500l., one of 430l., and one of 428l.—which were successively renewed, and as often dishonoured, from February, 1837, to December, 1838. The action had been brought in the Vice-Warden's Court, where the plaintiff failed to get a decision in his favour. Witnesses were examined, to prove the advance of the money by the bank, and the defendants' connexion with the concern as shareholders, when the jury found a verdict for the plaintiff, 1500l.

ALDERMAN T. WOOD AND THE TALACRE COMPANY.—On Saturday, the committee appointed to investigate the charges which have been made against Mr. Alderman Thomas Wood, in respect to his connection with the Talacre Iron and Coal Company, assembled in the New Council Chamber, Guildhall. The aldermen present were—Ald. Brown (chairman), Alderman Sir M. Wood, Sir P. Laurie, Sir C. Marshall, Sir G. Carroll, Sir J. Pirie, Sir J. Duke, Sir W. Heygate, and Messrs. Farncomb, Farebrother, Hooper, and T. Wood; the latter was attended by Mr. Laurie, the barrister, and Mr. D. W. Wire, as professional advisers.—Mr. Ald. Brown, in opening the business by observing that it was necessary to have the various papers connected with the inquiry laid before the committee, said he was not induced by any party purposes, but solely to arrive at the truth, which would enable them to make their report. He had, more than once, gone over the affidavits which had been published, and had given them considerable care and attention. With respect to the papers, he would propose that that marked A, which was the prospectus of the company, should be printed. That marked B, which was the deed of settlement, it would be an enormous and useless expense to have printed; he would, therefore, propose that it be left at the office of the Town-clerk, for the inspection of the committee. The paper marked C, bearing date the 28th of February, 1839, and those marked E and F, comprising the abridged prospectus; a purchase for 15,000l., afterwards sold for 18,000l.; and the directors' report of the 6th of July, 1840.—After some discussion, it was ultimately agreed that the papers applied for by Mr. Ald. Brown should be obtained; and that the charge and reply should be printed together, and sent round to the aldermen; and that, at the next meeting, the committee be prepared to make their report as to the truth or falsehood of the allegations which had been made against the character of Mr. Alderman Thomas Wood, of course affording him the opportunity to make any verbal observations he might deem requisite.—*Morning Post.*

PREVENTION OF DRY-ROT—SIR WILLIAM BURNETT'S PLAN.—A correspondent having required a description of the process of Sir William Burnett for the preservation of timber from dry-rot, and presuming the same to be of general importance, we select the following particulars from some accounts previously given in the Journal. Sulphate of zinc is dissolved in water in the proportion of 1 lb. to fifteen gallons of water (though in the specification it is stated 1 lb. to five gallons), in this solution the timber is laid until saturated, and it has been ascertained that on the average a load of fifty cubic feet will absorb twenty-five gallons of the preparation. The price of the sulphate of zinc is about 8s. per pound, thus the preparing a load of timber by this plan will cost about 3s. 4d., while, by Margary's patent process, in which the sulphate of copper is used, and which is so excellent a preserver of wood, the cost is not more than 1s. per load. No system of experiments can be more conclusive that the partly accidental discoveries of the preservative properties of a solution of copper by pieces of timber found in old workings in copper mines, which, though they have been under water, in known cases, from fifty to 100 years, are as perfect, and considerably harder than when new, and the pores of the wood, on close inspection, will be found to be filled with metallic copper in fine grains. Of all the effective plans hitherto laid before the public, the latter, we believe, is the most economical.

RAILROAD BETWEEN PARIS AND CALAIS.—The *Siècle* confirms the announcement that the Minister of Public Works had come to a final understanding with the company of English and French capitalists who have undertaken the construction of the railroad from Paris to Calais and Lille. The treaty was signed on Wednesday, by M. Teste, in the name of the government; and, in that of the company, by its representatives, Messrs. Rothschild, Mallet, Jacques Lefevre, Mills (*of* London), A. d'Eichethal, Thurneyssen, Dassier, and Leconte Desarts. The conditions are those stipulated in the law passed by the Chambers in 1842. The government is to execute the embankments and the works of art; to purchase the ground, and to build the stations. The company is to supply the rails, and complete the superstructure of the road; to establish the fences and the workshops, and provide the engines, carriages, &c. The line of road is to be 110 leagues in length. The government undertakes to complete the portion between Paris and Amiens in three years, and the remainder in five; and it was calculated that it would require a year or two more to lay down the rails, and render the road fit for travelling. The capital of the company is 70,000,000f. (2,800,000l. sterling). The company is to enjoy the concession during forty years, with a tariff, divided into two classes, the one of 6c. and the other of 9c. per kilometre, for the travellers. The tariff for goods is similar to that granted to the Orleans Company, and, consequently, inferior to that obtained by the Rouen Company; and, at the expiration of the lease, the government is to reimburse to the contractors the value of the rails. The Bill for establishing the company would, it was expected, be presented to the Chamber on Monday, with two others, relative to the conversion of the Tours and Orleans road, and that between Avignon and Marseilles.

BRISTOL AND GLOUCESTER RAILWAY.—At the half-yearly meeting of the proprietors, it was stated that the receipts to the 31st of December had amounted to 23,974l., and the expenditure to 23,965l., leaving a balance available for the shareholders of 26,509l. From this it was intended that a dividend equal to 2l. per share should be paid on the joint stock of the Bristol and Gloucestershire line. It was also resolved that the negotiation now in progress with the Great Western Company, in regard to the construction of the line from Stonehouse to Gloucester, and the terms upon which it should be leased to the Bristol and Gloucester Company, should be continued under the superintendence of the committee of management. This committee was also empowered to raise further sums upon loan notes, for the completion of the line, not to exceed 250,000l. in the whole, nor at an interest beyond 5 per cent. It was arranged that, for the future, the members of the committee of management should be not fourteen in number.

SHEFFIELD AND MANCHESTER RAILWAY.—We understand the directors of this company have taken advantage of the present low price of iron, to let, at a late meeting, the rails and chairs for completing the line towards Sheffield, whereby they have effected a saving of 50,000l. on the sum which they would have cost, according to the prices at which these appliances were valued in the parliamentary estimate.

ACCIDENT IN CASTING THE NELSON MONUMENT.—The casting of one of the statues for Nelson's monument, Trafalgar-square, narrowly escaped being a failure, not from any want of judgment on the plans adopted by Mr. Clark, the artist, to whom the making of the ornaments of the column have been entrusted, but to an unforeseen accident, the bank of the furnaces having given way when the metal was nearly in its complete state of fusion, which caused about four tons of the boiling metal to fall amongst the coals and ashes. Fortunately, Mr. Clark had added a larger quantity of metal to the furnaces in the first instance, and, immediately, on the accident taking place, attempted the casting, and succeeded perfectly in filling his mould with the old of about 10 tn. of metal, which was, fortunately, in a fluid state in another part of the foundry. The casting has been taken out to-day to ascertain that it was perfect and a more beautiful and perfect piece of workmanship in all its parts could not have been made under the most favourable circumstances. The quantity of metal in the statue is as near as possible to the weight calculated upon being from 16cwt. to 17 cwt.

MEETINGS OF SCIENTIFIC BODIES.

IN THE ENSUING WEEK.

SOCIETY.	PLACE OF MEETING.	DAY.	HOUR.
Royal Asiatic	14, Grafton-street	Saturday	3 P.M.
Royal Botanical	Regent's-park	Saturday	4 P.M.
Westminster Medical	Exeter Hall	Saturday	8 P.M.
Royal Geographical	6, Waterloo-place	Monday	8½ P.M.
Medical	Bolt-court, Fleet-street	Monday	8 P.M.
Royal Medical and Chir.	53, Berners-street	Tuesday	8½ P.M.
Civil Engineers	25, Great George-street	Tuesday	8½ P.M.
Zoological	57, Pall-mall	Tuesday	8½ P.M.
Society of Arts	Adelphi	Wednesday	7½ P.M.
Graphic	Thatched-house Tavern	Wednesday	8 P.M.
Pharmaceutical	17, Bloomsbury-square	Wednesday	8½ P.M.
Royal Astronomical	Somerset House	Wednesday	8 P.M.
Bl. Society of Literature	91, Martin's-place	Thursday	5 P.M.
Mathematical	Crispin-street, Spitalfields	Saturday	8 P.M.

PUBLIC COMPANIES.

MEETINGS.

Miners' Company	Office, 17½, Old Broad-street	April 6	1.
Sheffield Water Works Company	Cutlers'-hall, Sheffield	10	12.
Tintoch Mining Company	44, Finsbury-square	11	2.
Ebbw-vale Iron and Coal Company	Offices, 4, Pancras-lane	19	2.
London and Birmingham Railway	Euston Hotel	May 1	13.

CALLS.

Yarmouth and Norwich Railway.. £5. per share.. April 15.... As former calls.

DIVIDENDS.

Tincroft Mining Company	10*s.* per share	44, Finsbury-sq.	April 6.
Tamar Silver-Lead Mining Co.	£5. per cent.	44, Finsbury-square	10.

NOTICES TO CORRESPONDENTS.

BRITISH AMERICAN LAND COMPANY.—We have an interesting article in type, but its length, and a pressure of other matter, precludes its appearance in our present Number.

MINING BOARD.—Had "Connection" attached his name to the communication he has addressed us, it should have appeared. There is ground for his assertion, but we have now made such arrangements as, we think, will effectually remedy the evils complained of, so far as we are concerned.

"M." 92, Dor.—We cannot interfere in the matter respecting which our correspondent writes; we, however, agree with him that a change would prove advantageous.

THE MINING JOURNAL,
Railway and Commercial Gazette.

LONDON, APRIL 8, 1843.

Economy in mining is the first object of consideration, whether the question be applied to management, the construction of machinery, or modes adopted in the underground operations, and hence any plan, which has for its object the economy of labour, the preservation of life, and affording means to the adventurer of exploring the "hidden treasures" at a less cost than that to which he is subjected by the means at present at command, must ensure the support, not only of every philanthropist, but of all who are interested in mining operations. It is, therefore, with much pleasure and satisfaction that we direct attention to the report, in another column, with reference to the mode adopted by Dr. FAVENNE, and lately patented by W. R. VIVIAN, Esq., whereby, not only can mines which are impregnated with foul air be worked, but much time, and, consequently, money, saved, from the advantages afforded by the application of the patent; and, further, even in cases of blasting, the "powder smoke" may be easily got rid of, and thus a most desirable object effected.

We have not entered upon the subject in detail, as we reserve such until a future number, when we propose to give, not only an abstract of the specification, but the results of experiments made; having, in our notice of the meeting of yesterday, merely adverted to the object, which, however, is more particularly defined in the advertisement.

Mr. HAYES, who conducted the experiments, evinced a perfect knowledge of the subject; & although not intimately interested in mining pursuits, afforded such practical demonstration to those present as must have satisfied even the most sceptical that the object can be fully acquired. It would be premature to enter into the principles, or mode of application, on the present occasion, under such circumstances, but we may, *en passant*, observe, that oxygen being supplied from the surface, where the gasometer is fixed, passes through a pipe, by which it is conveyed to the level, or winze, where impure air exists; at the same time the foul air is drawn into a vessel of cylindrical form, in which water is introduced—much as on the plan of the gas-meter, which has been lately treated upon at length in our columns. We need hardly observe, that the quantity of air consumed by one candle is about one cubic foot per hour, while the miner requires two feet of pure oxygen—thus making, together, three feet of pure oxygen; this being supplied, the foul air is extracted by the cylinder, which is similar to that employed in foundries, but much smaller, having arms or paddles in the case, or external structure, whereby the impure air is got rid of—the oxygen being supplied by the pipes from the gasometer, to which we have referred, and which is at once thrown into the levels.

We do not purpose entering at length on the subject this week, it is sufficient that we thus direct attention to the patent, which promises to be of so much value to our mines, more especially those where the necessity of sinking shafts, for the purposes of ventilation, are of so much object—whether we regard time or expense.

Considerable excitement has, for some time, prevailed respecting the quicksilver contract, which has, at length, been brought to a close, the successful bidder being Senor SALAMANCA. It will be seen, on reference to an article in another column, in which we have embodied the particulars, that the Spanish Government have succeeded in obtaining a considerable advance on the last contract, which was taken by M. ROTHSCHILD at 60 dollars per quintal, while the present is 81¼ dollars. We apprehend that the increase in the price will have a serious effect on foreign mines, where so vast a quantity is used in the process of amalgamation, noticed in our last. Indeed, this has been, in some degree, manifested in the market price—quicksilver being now quoted 4*s.* 6*d.* per lb. This, although not a correspondent increase with that which has taken place in the terms of the contract, is, in some measure, to be accounted for by the heavy stock said to be in the hands of M. ROTHSCHILD, which would have a tendency to keep down the price. There are some curious rumours afloat and surmises as to the nature of the contract entered into, and how far M. ROTHSCHILD is interested or otherwise. Of one thing there can be no doubt, which is, that any advance which may take place in the price of the article, must give to M. ROTHSCHILD a considerable profit on the stock now in hand, and so far, at least, he is interested in keeping up the price, which has been fully effected by the terms of the late contract entered into with the Spanish Government.

Since writing the above, we learn that an arrangement has been entered into by Messrs. ROTHSCHILD with Senor SALAMANCA, whereby the former have engaged to advance all the capital necessary for working the mines, and the deposit of 50,000,000 reals required by the Government, giving to Senor SALAMANCA, who is thus only nominally the contractor, one-third of the profits. If, then, we had cause for alarm, as affects foreign mines ere this communication was made, such is necessarily increased by the nature of this intelligence. It is stated, on authority, that the silver produced from the mines of Mexico, by means of amalgamation, is about 1,400,000 marcs per annum, and the annual consumption of quicksilver 1,400,000 lbs., or 14,000 quintals, being at the rate of 1 lb. per marc.

The entire quantity of quicksilver obtained from the mines of Almaden is about 22,000 quintals per annum, so that the Mexican mines alone absorb a quantity equal to two-thirds of the produce. With reference to the price at which this indispensable article is furnished, some idea may be formed of the ruinous consequences likely to attend the Mexican mines, when it is considered that the price in England has risen from 1*s.* 9*d.* per lb. to 4*s.* 6*d.*, and that in Mexico the price has lately ranged from 125 to 130 dollars the quintal (antecedent to the late contract), which, in 1828, was supplied at 40 dollars—the advance being upwards of 200 per cent., and which will now, doubtless, be further increased. We have been favoured with some statistical details, as to the consumption and stocks at the principal mines, which we will endeavour to put in form, with such other information as we may collate in the interim of the publication of our next Number.

The Court of Aldermen have at length assembled in conclave, and made another step in the Talacre affair, having selected a day (the 1st of April) for their deliberations, which has, from time immemorial, been held as one famous for its ordinances, and the little follies committed. It is hard to suppose the court purpose further to stultify the proceedings, or themselves, or that they even contemplate their acts should have the slightest tendency to make others "fools;" but the delays which have arisen, the course they have thought fit to adopt, and the absence of those parties, or their solicitors, who might lend a helping hand in the *inquiry* (?) lead us, we regret to say, to the conclusion—that the investigation is a mere farce.

Upwards of nine months have passed away, and little or nothing has been done. In less than three months the livery will be again called upon to elect a Chief Magistrate for the ensuing year, on whom will descend the honours of mayoralty. If the court, then, would afford the livery the opportunity of giving an opinion on the conduct of the accused—if that they would put them in possession of even such information as they may acquire in the course of the investigation, their measures should be prompt; they should not, on the score of economy, evade the publication of the evidence which may come before them, and on which they ground their decision; nor should the learned Alderman be deprived of the *benefit* which, doubtless, will arise to the community from the publication of his defence.

As a civic legislative display, we augur much; for the learned Alderman knows well his ground, and is well able, even unaided by the special pleader (Mr. D. LAURIE, the barrister) and Mr. D. WIRE, to maintain his position, whatever may be the verdict of the jury. We will still hope for the best; the Court of Aldermen consist of honourable men, and who will, doubtless, feel that—if the eyes of the world be not upon them—at least, the attention of the citizens of London, and all honourable men, are fixed upon their proceedings, which are watched with interest, more especially by those who are interested in joint-stock companies, and dependent on the integrity and honour of the parties to whom their interests are confided.

MINES AND COLLIERIES.—In the House of Commons last night, Lord Ashley presented petitions from the following places and persons:—The St. Lawrence Colliery, Newcastle-upon-Tyne; Meeting of Miners, Newcastle-upon-Tyne; Stevenson's Coal Mines, Lanark; East and West Cramlington, Northumberland; Saltcoats, Beerton, Thornhill, and Middlemore, Lanarkshire. In favour of the Ten Hours' Bill, from Staines, Chertsey, Bonsingham, the Visitors of the Sunday Schools of Rotherham, and another place in the West Riding of Yorkshire.

SOUTH-EASTERN RAILWAY.—We understand that on Easter Tuesday another grand blast at the cliffs on the line of the South-Eastern Railway, near Dover, will take place. The operation will be on an extensive scale, as it is intended to explode sixteen mines simultaneously, by means of the galvanic battery. The time appointed is four o'clock in the afternoon, which will give an opportunity for the scientific men and others who take an interest in these very remarkable works to arrive by the morning train from London.

ORIGINAL CORRESPONDENCE.

IMPROVEMENTS IN THE STEAM-ENGINE.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—It is a work of supererogation, perhaps, to reply to the remarks of your correspondent, "M.;" and, moreover, as I am not disposed to useless controversy, I am quite content to leave the matter to the judgment of your readers, whether or not my communications, by any means, show an intention to misquot them. I am very sorry I should have called Messrs. Hocking and Loam's names in question in conjunction with "M.," but the letter really did savour so strongly of their, at least, having some connection with it, that I could not divest my mind of the idea that they must have been the original promoters of that very interesting production. I am very glad to find they were not so (more especially of the last letter), but as they, Messrs. Hocking and Loam, say in their letters that the ground which "M." has taken may be maintained against much stronger arguments than any I have yet advanced, I must beg, through this medium, to furnish them with some information, which, probably, will be more satisfactory, and will, in a measure, satisfy them that the ground "M." has taken is exceedingly wrong. Having some time ago granted a license to Mr. W. West, engineer, at the Fowey Consols, &c., and one of our most indefatigable and talented Cornish engineers, he has commenced the erection of my engines. On the 22d ult. he started the first, a winding-engine, at the Par Consols Mine, near St. Austell, and, on Monday last, he was kind enough to furnish me with the following report of her early performance:—

St. Blazey, March 28.

DEAR SIR,—I have to inform you that I started the little whim-engine at Par Consols on Wednesday last. I had the pleasure of seeing her work for two or three hours—during that time she gave me great satisfaction. On my arrival home last night, from the eastern part of the county, I sent for my man, who had the care of the engine at Par Consols, who informed me that the engine has been working well for the last three days. He informs me that she has been drawing 100 kibbles (or buckets), ninety fathoms deep, on the consumption of two bushels of coals. The stuff in the kibbles is from 10 to 12 cwt. each. The engine is not yet coated, and, as you say, all new and small engines work under a great deal of friction for the first few weeks—if it is correct, as my man tells me, of which I have no doubt, the little engine is doing wonders. I shall have her coated immediately, and give her a fair trial. I hope you will excuse my remarks relative to a trial of the Cairn Brea engine. I don't wish it myself, as I am fully convinced that the savages can be made according to your statement. I am very much obliged to you for granting me a licence for erecting your engines. I am now about to commence the building of an engine-house at Par Consols; the engine is an 80-inch cylinder and 12-feet stroke. What do you think of placing a 144-inch cylinder under this, as I can see very plainly that an immense duty could be got out of her, and, by my calculations, we could carry a load of 120,000 lbs., and twenty tons of boilers will do better than thirty tons? By having two cylinders, I calculate the engine to be equal to more than a 166-inch single cylinder engine. Will you be so good as to give me your report on this engine, as I think I shall be able to erect a great many engines on your principle almost immediately? Let me hear from you as soon as convenient.

I remain, dear Sir, your obedient servant,

Mr. James Sims. W. WEST.

In a subsequent letter from Mr. West, granting me liberty to publish the above, he says—You are quite welcome to make use of what you think proper of the statement I sent you respecting the little engine, as I have said nothing more than I can carry out. I hope this statement will satisfy Messrs. Hocking and Loam that there is some improvement in this combined cylinder engine; and I beg to assure these gentlemen that no anonymous letters, in future, shall induce me to call their names in question; and I hope that, when "M." next draws upon his knowledge of the steam-engine, it may be in a case where detection of his ignorance would be more difficult and less ignominious. J. SIMS.

Redruth, April 3.

MESSRS. KYMER AND LEIGHTON'S FURNACE—ANTHRACITE.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I think it necessary to send a brief reply to the letter of "A Llanelly Railway Shareholder," which appeared in the *Mining Journal* of the 1st inst.—reserving, till a future period, a lengthened statement of the advantages of the plan which Mr. Kymer has patented, when I may be in possession of attested data sufficient to satisfy the most sceptical.

It is quite evident that "A Llanelly Railway Shareholder" has not seen the furnace, otherwise he would not apply the terms "a complex application of fans, and indescribable fire-grates;" for, all parties who have yet seen it are struck with the extreme simplicity of the arrangement. It is certainly difficult to convey a correct idea of the grate by a mere description; but, if "A Llanelly Railway Shareholder" will call at No. 45, in the Minories, any day, between the hours of nine and five o'clock, I shall be glad to explain it by a model. I admit that M. Lejeune obtains a similar result by the use of steam from the boiler; but it must be borne in mind that there is so much steam lost; in fact, to such an extent that all advantage is sacrificed. It is now nearly six years since I proposed to Mr. Wm. Chambers a plan for using steam to aid the effect of anthracite in furnaces, and actually worked a colliery engine at Llanelly some days with much success; but the objection then started was the above—viz., the loss or waste of steam. It is strange that Mr. Chambers has now joined in a patent for a plan which he then condemned; and unfortunate that M. Lejeune has stumbled upon the very method of applying the steam which was patented, about seven years since, by Messrs. Spilsbury and Maugham.

Every one conversant with the subject must be satisfied of the advantage of applying steam, or the vapour of water, to an anthracite fire; and to effect this, without loss from the boiler, suggested to me the form of furnace now used. I am surprised to find many men of high standing doubting, and even disputing, the advantage of steam. I am myself fully satisfied; and feel confident, ere long, to be able to convince others. I first tried the grate simply with the ordinary draft of the chimney, but found a deficiency of air passing through the fire, to obviate which I adopted a fan-blast; the effect was complete. For three years I have pressed the subject upon the notice of parties deeply interested in the success of anthracite proprietors, but without being able to make any movement, until Mr. Kymer saw it in operation on a small scale, when he immediately took it up, and, through his spirit and indefatigable exertion, it is likely to be brought into use. If it should, "A Llanelly Railway Shareholder" may expect dividends; at the same time he, and his brother shareholders, should reflect that Mr. Kymer has an arduous task on hand; that, so far from offering any opposition, every one interested, and having the means, should lend a helping hand. T. H. LEIGHTON.

London, April 3.

ANTHRACITE COAL.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—If your correspondent, "A Shipper of Culm," will favour me with his name, I will reply to his letter of the 28th March, when I will undertake to prove the fallacy of his statements. I consider an anonymous writer as wishing to disguise the truth, or intending to mislead the public.

London, April 7. JOHN KYMER.

ANTHRACITE v. BITUMINOUS COAL—KYMER'S PATENT.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—From the several communications which appear in the Journal of the 1st inst., I am happy to find that we may expect to have anthracite supplied to us in London at a much lower rate than I had been led to expect it was possible to be procured. I am a large consumer of coal, and should be truly glad to abate the nuisance of smoke, if I found that I could do it effectually, and without any additional expense. Now, if a description of anthracite, suitable to Mr. Kymer's furnace, can be supplied—say, at 17s. 6d. per ton—the total absence of smoke may be accomplished with an actual saving in the cost of fuel. I have been in the habit of buying the low-priced Newcastle coal, such as Ord's *Redhough*, now at about an average price of 14s. per ton. If Mr. Kymer asks 22s. per ton for his coal, and he can effect what he professes—that is, that three tons of anthracite will do the work of five tons of the other—then there is a trifling advantage in his favour, without any charge for patent right. Mr. Kymer seems undetermined what that charge is to be, but said something of a pound per horse-power as an annual charge. I have boilers equal to 250-horse power, the charge upon which would, therefore, be 250*l*. My present consumption of coal amounts to about 6000 tons, at a cost of, say, 4200*l*. If, by the adoption of Mr. Kymer's furnace and coal, I can reduce the consumption to 3600 tons, at 22s., the cost of fuel is reduced to 3960*l*., to which is to be added the charge of 250*l*. for patent right, raising the cost of fuel to something more than the present amount. But if the coal can be delivered at 17s. 6d., the saving is such as to induce all manufacturers to adopt it. In my case, the cost of fuel, including charge for patent, would be reduced to 3400*l*., showing a clear gain of 600*l*. per annum. If satisfied of the accuracy of these statements, much less would induce me to adopt Mr. Kymer's plan. I trust shortly to see the matter brought before the public in a form which will leave no doubt of its success.

April 3. A MANUFACTURER.

(There can be no question but that anthracite, such as required for Kymer and Leighton's furnace, could be rendered in London at 17s. 6d. per ton—that is, assuming rubbish be employed; and, from what we have seen, it appears to us of little moment the size of the coal. As to the proposed charge of 22s. per ton, we are not aware that such is the price required; but we were given to understand it would cost thus much. Assuming that anthracite, of the description necessary, could be furnished at 17s. 6d. per ton, then the question, as one of pounds, shillings, and pence, becomes important, and is at once settled, while the smoke nuisance is remedied.]

MR. C. W. WILLIAMS ON MR. HALL'S NEW PATENTS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—If the triumph of the principle I have advocated, of supplying air to furnaces, be not now complete, I know not what further is necessary, seeing that this principle has at length vanquished my great opponent, Mr. Samuel Hall, and compelled him to enlist under its banner. Your readers will not have forgotten the wordy war between myself and Mr. Samuel Hall, in which I contended that Mr. Hall's unpublished patent of 1841, as applied to the *Star* locomotive, was an infringement on mine of 1839—viz., by the admission of cold air in the divided form of jets—Mr. Hall's patent of 1836 being for certain modes of heating the air, and applying it when so heated.

I have now to announce Mr. Hall's adhesion to my principle and practice—viz., the argand principle of cold air by numerous orifices, as he has since (in November, 1842) lodged the specification of his new patent (only the fourth) for "the combustion of smoke and fuel." That there may be no doubt on the subject, I refer your readers to this month's Number of Newton's *London Journal of Arts*, where they will find the specifications of both Mr. Hall's new patents—viz., of 1841 and 1842. In the latter, after a wordy and confused detail of claims, we come to the ninth, in the following words:—"For the introduction of *jets* or streams of air, of *atmospheric temperature*, to the furnaces of bakers' or other ovens; also to roasting, smelting, calcining, and *all other furnaces*, whether taken into such furnaces by the means shown in fig. 5 or fig. 6, or *in any other way*." Now, I do think, in common courtesy, Mr. Hall might have added, "always excepting the patent of Mr. C. W. Williams, of 1839, for the same thing." Your readers, no doubt, will consider this sweeping claim for the introduction of cold air, and by means of jets too (in addition to his former patents for the use of hot air, without jets), in *all kinds of furnaces*, and whether introduced in the way he now claims, or *in any other way*, as "pretty considerably comprehensive." At all events, it is now clear that we shall have no more patents for "the combustion of fuel and smoke," seeing that Mr. Hall has by this, his last patent, absorbed, and even monopolised, for fourteen years, the use both of hot and cold air in all kinds of furnaces, and in all possible ways. After this, the hot air advocates may hold their peace, while the mechanical ingenuity of the next fourteen years is all inclosed within this last drag-net patent of Mr. Samuel Hall. By the way, I think Mr. Hall owes an apology, both to your readers and to myself, for the trouble they have had in reading his statements, and the expense he put me to, in proving that the claims he now makes, by his patent of 1842, were not in his patent of 1836. Had Mr. Hall at once told the truth, and informed us that the improvements he was last year making such a stir about were *intended* to be embodied in a new patent, which he was then suing out, and that the law was in his favour, and exclusively to have an *ex post facto* bearing, he would have brought the matter within a narrow compass. How far the public will patronise, and the law sanction, the introduction of cold air in a divided form, and by numerous small orifices, on the argand burner principle, under Mr. S. Hall's last patent of 1842, or that of Mr. C. W. Williams of 1839, remains to be seen. Meantime, I have to thank Mr. Hall for this additional testimonial in favour of the use of "air of atmospheric temperature" (*ruigo*, cold air), and by the way of jets, flues, or streams—thus confirming, as far as Mr. Hall's authority goes, both the principle and the practice I have endeavoured to introduce. C. W. WILLIAMS.

Liverpool, April 3.

[We had almost arrived at the conclusion, that the smoke nuisance, if not abated, at least the subject would not again have been agitated in our columns. As to the cause, "C. W. Williams *v.* Hall," it appears, however, that a new light has been discovered by the latter, on which our correspondent makes some pertinent observations.]

HALL'S NEW PATENTS FOR CONSUMING SMOKE.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Observing no less than two new patents, now published by Mr. Hall, in the *London Journal of Arts*, for consuming fuel and smoke, I have to request that some of your correspondents, or Mr. Hall himself, will give me information on the following points:—1. What difference is there between Mr. Hall's patents for 1836, 1838, 1841, and 1842?—2. What is Mr. Hall's reason for now adopting cold air in his furnaces, as, when he altered mine, some time back, and at a heavy charge to me, he argued strongly against the use of cold air, and, at the time, convinced me of the value of hot air, and, indeed, the altering my furnaces to obtain this hot air, gave much trouble and much expense? My hot air furnaces have not done well, though he made several alterations, and we fell out. I want to know whether I have not a right to require Mr. Hall now to give me the benefit of his cold air principle, and to alter my furnaces, without charge? I have read the two patents in the *Journal of Arts*, and confess I do not understand them, for there is such a mixture of hot and cold air in his several claims, that it is hard to tell what he means to recommend.—*April 6.* A MANUFACTURER.

WOOD PAVING.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Since wood, as a material for street paving, has come into considerable use, many plans purporting to be improvements, have, of late, been patented, the principal portion of them being for overcoming the slipperiness the whole of the original methods have been found to possess when at all covered with moisture. Now, Sir, not one of the plans for effecting this object seems, in the least degree, likely to be successful, though some of them are forced with the greatest pertinacity before the public, as sure to fulfil every desideratum. Perring's, having the name of a sounder from the Metropolitan Wood Paving Company attached to it, is now apparently taking the lead, and principally, I should say, on this account only. Mr. Stevens having put himself prominently forward as an author on the subject, his tract on wood paving—in the support of the system upon which he was then engaged, but which he now so decries—having appeared some time since. A difference between the Metropolitan Wood Paving Company, and Mr. Lee Stevens, upon personal grounds (I believe, singularly enough), has caused an alteration in his opinion upon the merits of their system of paving, and exactly in the way he treated every other, when advocating theirs, does he now treat theirs when advocating Mr. Perring's. That Mr. Stevens, on Perring's system, is wrong—and, on scientifically considering the subject, most egregiously so, no one can doubt, who has been enabled to give attention to the subject. That Mr. Perring obtains a greater foot hold for the horse on his plan it is very well to state, and to exhibit a model in furtherance of this statement, but let it be tried. To every party, before taking a single share in the London Wood Paving Company, I say, let it be tried; it is far better to subscribe towards such, and the loss of cash will thus find a limit, not otherwise certain. Mr. Perring says, that, by placing the hard and soft portions of the blocks in diversified positions—that is, so that neither one or other run in right lines with the line of the road—they will necessarily become more durable, as no continuous rats can be formed. This is certainly a good feature, and, indeed, the only one, but it is impossible, as alleged, that such can prevent slipping, nor can I see that the system of grooving, obtained by the slips of wood placed horizontally between each course of blocks, at about one inch below the surface, can effect it either—at least, better than the Metropolitan Wood Paving Company's plan. The economy of the paving, as stated, arising from the principle of placing those slips between each course, is evidently a fallacy, for the extra amount of labour must more than swallow up the advantage gained of increased space; the slabs of the tree from which the blocks are cut, having first to be cut to the desired thickness, then squared up on the edges, and afterwards levelled to fit each other, in addition to the boring of the holes for the pins. The slips of wood, when placed between the blocks, are injurious to the stability of the road. The holes in the slips must be larger than the pegs, to permit of the contraction and expansion of the blocks, as also to allow of the necessary curvature of a slab of blocks for the road. These slips, from the pins having room wherein to work, their intermediate support being destroyed by the enlargement of the holes, therefore, form fulcrums, over which, by any sudden force, a pin may be broken—a link to the chain of the general destruction of the road. The questions for the public to consider, are, 1st—Does Mr. Perring's, as the most prominently put forward system, obtain what is claimed for it—viz., a sure foot hold for horses under all conditions of weather? and, 2d—Does it offer a saving on the first cost, with, at least, equal durability? Both of these questions, I think, every thinking person will answer in the negative. The computations of, I should say, Mr. Stevens are as fallacious as the plan he now advocates. The savings he sets forth ought to be, as I am certain they will be found in practice, exhibited as excesses—the durability as want of durability—and the sureness of foot hold for horses no improvement at all upon the old plans; and with this I leave the subject to the consideration of those interested. E. A. J.

London, April 3.

ON CORAL REEFS, AND THEIR ARCHITECTS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Those who heard my lectures on coral reefs will be rather surprised at the flippant strictures of a correspondent, in your last Number, who signs himself "Thomas Deakin." So far as I can understand his very confused letter, he imagines me to say that the whole of the limestone beds of Wenlock, and other places, with their intercalated shales (often several miles in width), were formed in their present state by the labours of coral polyps alone. I have always objected to brief extracts of my lectures appearing in print; the omissions which the necessity of brevity demands are almost sure to lead to misconception.

My views on this subject will be best explained by a reference to the mode in which limestone strata are being deposited at the present time. Take, for example, the great barrier reef, which stretches for nearly 1000 miles along the eastern shore of New Holland, at an average distance from the land of from twenty to thirty miles, and, in some parts, even seventy. The ridge of stone actually reared up from the bed of the ocean, by the coral polyps, is comparatively narrow; but the action of the waves incessantly dashing against the outer edge wears down the reef, and spreads the calcareous debris in layers over the bottom of the wide lagoon channel; rivers from the land are, at the same time, bringing down sand, clay, and carbonaceous materials. In a rainy season the rivers are swollen, the quantity of earthy matter is increased, and thick beds of shale are formed; during the dry season the amount of calcareous matter, broken from the reef, preponderates, and a bed of lime is deposited; and this process has been going on for thousands of years, and will continue, until some change of level occurs, when this tract may become dry land, and we shall have a limestone formation, perfectly analogous to that of Dudley, the oolite, or any other geologic deposit of the ancient world, and more extensive than most of them, inasmuch as it will occupy a tract of at least 1000 miles in length, and, in some places, seventy in breadth, and of a thickness, probably, exceeding that of any ancient formation with which we are acquainted; while the organic remains of molluscs, radiata, fishes, and other classes of animals, will be found deposited in the various beds, to mark the different epochs of their formation, and precisely as we find it to be the case in the beds of the coralline and lower oolite, and at the Wren's-nest Hill, near Dudley—great masses of coral, often preserving its beautiful structure uninjured, might be traced over considerable tracts of country.

This is no solitary instance; the same analogy to ancient limestone beds is conspicuous in the numerous atolls, or ring-shaped reefs, spread over such vast areas of the Pacific and Indian Oceans; and, if Mr. Deakin is anxious to discover an instance of an ancient lagoon island, I must refer him to my remarks on the ancient reef of the oolite which encloses the chalk basins of London and Paris; and, if he will "go and see it," or even trace it out on a good geological map, I think—notwithstanding all the denudation which has taken place—he will see enough to make him, in future, write with more diffidence.

As my only object in making these remarks is to explain more clearly my views, and to remove all causes of misconception, I would gladly avoid alluding to the great want of information betrayed by your correspondent on the mode in which coral reefs are constructed; his notions appear to have been gleaned from the crude observations of the earlier navigators; and—before he again ventures to write upon the subject—as a friend, I would advise him to read Mr. Charles Darwin's book *On the Structure and Distribution of Coral Reefs*, or Mr. Maclaren's able digest of Mr. Darwin's views, in *Jamieson's Edinburgh Quarterly Journal* for January, 1843. I trust I have now said sufficient to prevent any further misconception of my meaning; and I beg, respectfully, to state that, whatever further remarks may be made on the subject, by Mr. Deakin, or any other of your correspondents, they will not be noticed by me; want of leisure and want of inclination alike forbid me to pursue the subject further. I am quite content to leave it now in the hands of the readers of the *Mining Journal*. WILLIAM IOR.

Birmingham Philosophical Institution, April 4.

P.S.—In your report of my second lecture, speaking of the cretaceous reef, you make me say—"It exists, possibly, in the *island of New Zealand*." It should be "*island of Zealand*" (sometimes spelt *Seeland*), in Denmark. The mention of its being quarried at Faxoe may set some of your readers right, but not all. "Reeling's Atoll" should be "Keeling's Atoll."

GEOLOGY—NEW SYSTEM OF PHILOSOPHY.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I have to thank your Hebrew correspondent, "J. S. D.," for admitting that, "strictly speaking, *creation* is the bringing into being something which did not before exist." It is my intention to write strictly, and not loosely, and as I hold that language is anything "but an imperfect medium of expression"—that it is, in fact, a perfect medium—I am in the habit of taking men's words, and not their names, into account. I will not stop to inquire whether Maimonides or "J. S. D." are sufficient authorities for what may have been advanced *pro* and *con*, but I will take leave to refer the latter to my former letter, and let the followers of Maimonides, who believe in an "absolute creation out of nothing," settle their differences with the Drs. Buckland and Chalmers, who "transform the heavens and the earth out of previously existing materials"—(*Bridgewater Treatise*, p. 19). "J. S. D." has much to learn, both in Hebrew—especially in the first chapter of Genesis—and in geology. I would recommend him to weigh well the expression—that Hebrew word, rendered "create," "implying, *in his opinion*," an impossibility to pause, before he treats as a mere fable the records of creation; and, above all, to learn to "know himself." PATRRA LIGNEA.

ETHER ENGINE.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Many years ago I proposed a small vapour of ether engine, which, though limited in action, I cannot but believe might be made subservient to many useful purposes. I published a figure of this simple machine in one of my chemical works, which may be thus described:—It consists of a globe, with a ball branching from it; when this globe, containing sulphuric ether, dips into a vessel supplied with water, at a temperature exceeding 100° Fahrenheit, the ether assumes the elastic form, and impels a double-headed piston to the further terminus of the horizontal cylinder, connected with it, which, as the cylinder is equipoised, when the piston is central (being suspended like the balance on a fulcrum), will then preponderate in that direction. This elevation of the branching ball, also charged with ethereal vapour, coming in contact with a plug above, discharges a jet of cold water, which, condensing the vapour, the piston is propelled in the contrary direction, in virtue of atmospheric pressure, towards the newly-formed vacuum. The globe again dips into the hot water, and the piston is again, like a shuttle, propelled to the other extremity, and so on. Checks in the horizontal cylinder regulate the extent of the piston's range. Thus is the balance alternately elevated and depressed at either end, and serves, at the extremity furthest removed from the globe, to act on the piston-rod of a water pump; it is clear there can be no waste of ether. An officer of her Majesty's ship, *Britannia*, 120 guns, told me it would be invaluable on ship-board, in storms, to work the pumps. I am surprised that other, combined with the electric spark, has not long ago been employed in gunnery, as a propelling power of gigantic force, when it is considered with what impetus a ball is discharged from a model mortar, by the sudden expansion of a drop of ether, effected by the electric spark. It occurs to me that Bunsen's battery might be admirably applied in the ignition of platinum wire confined in a cylinder to expand ether, or reduce it to a highly elastic vapour, together with other elastic fluids and media, and produce prime movers of immense power, by the most simple means. The mode of condensation is sufficiently obvious. J. MURRAY.

P.S.—In my communications my object is not controversial; I am anxious merely to register facts, perhaps of some general interest, and such as may eventually elicit the latent thought of others, or lead them to reflect on means by which the common weal may be benefited, or afford materials for mental ingenuity. In reference to meteorology, as connected with electricity, I am quite satisfied with the commentary which my letter on that question has elicited from your intelligent correspondent. J. M.

[We have to express our obligations to our correspondent, whose object, if observed by many others, would be more useful to the community, as well as satisfactory to ourselves.]

THE NATURAL LAWS OF FLIGHT.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Your correspondent, Mr. W. H. Phillips, is certainly under a delusion, in attributing to naturalists the very ridiculous theory that the flight of birds is facilitated by the powers they possess of charging their frames with a buoyant gas, and that their maintenance in mid-air depends upon, and is in proportion to, their muscular strength. In the philosophy of flight in mid-air, due account has been taken of the buoyant nature of their feathers, and their peculiar muscular action, which, called forth for the occasion, gives the requisite expansibility to every feather, so as to expose the largest surface possible to the aerial medium through which they move. The anatomy of birds gives the air cells, five in number, on each side of the body, formed of distinct tunics in the ostrich and cassowary, so that each is a separate bag, distinct from the great membranous partitions of the cavity, but in others resembling the pleura, or peritoneum, seeming to produce all the different cavities by means of reflection; each of these air holes in the surface of the lungs opens obliquely into the air cells, there being a slight projection of this membrane over the aperture, and the French anatomists ascribe a valvular effect to this structure, supposing it to serve the continuous distensions of the air bags after they are once inflated; the air cells found among the muscles and integuments of the external parts of the body vary in number and magnitude, according to the structure and economy of the bird, the anterior thoracic, or jugular cell, being continued along with the vessels and nerves into the axilla, making what is termed an axillary cell, and, in most birds, others go off from this anteriorly under the pectoral muscles, and backward under the muscles of the scapula, forming pectoral and sub-scapular cells. Most birds of flight have a number of cells placed under the lateral muscles of the neck; the subcutaneous air cells of the pelican are very large, being peculiarly adapted for carrying an excessive weight. The experiments of Cowper tend to prove still further that the bones of birds are supplied with air; thus, in the eagle, he found the air cells communicated with the thigh bones, those of the pelvis and ossys, all the vertebræ, the sternum, clavicles, scapulæ, and fork-shaped bone, and the bones of the wing. Your correspondent talks of domestic fowls not being endowed by Nature with muscular strength to support their weight and sustain their flight, but have domestication has deprived the bird of its natural powers, by contraction of the air vessels; and, again, some birds, such as the penguin, the puffin, &c., are deprived of air in the humerus, and thus they are disabled from transporting themselves to any distance on the wing; but, if the domestic fowl be placed under other aspects, far from the habitation of man, the air vessels of its progeny would gradually assume their natural powers, and the birds would be enabled to fly—this is demonstrated by Guinea fowls, the pea fowl of India, and the wild turkeys of America. Again, the vital temperature of birds is of higher standard than other animals, which enables them, not only to resist the influence of external temperature, but also gives greater freedom of development of muscular action to all parts of the animal frame, admitting, with greater force, the aerial expansion necessary to sustain them in mid-air. It is also certain, that the feathers in the living bird perform the like part with the leaves and twigs of trees, of inspiration and respiration, and that, by this means, the air cells of the quill part become charged with the requisite quantity of air, which, coming in contact with the blood, undergoes a chemical change; in most birds of flight the adhesion between the boards of the wing feathers is rendered very firm, and the feathers closely fitted upon each other, so that they are enabled to present an unbroken surface to the impulse of the air during flight. Carnivorous birds are generally provided with wings of great length, the muscles which move them being proportionably large and strong, whereby they are enabled to keep long upon the wing in search of prey. It does not strike me so forcibly as it may your correspondent, that granivorous birds are especially devoted to gratify the carnivorous propensities of man, any more than the cod fish of Newfoundland, or the herrings which frequent our coasts; for, although some species are capable of being reared in the domestic state, others, and sometimes the most desirable, are extremely shy of the favour man would bestow upon them, preferring liberty, and the wild woods, and even the procurement of less fastidious appetites. In the wild and in the tame state, the anatomical structure of birds is much alike, but generally the reverse to what your correspondent infers, those in the wild state having greater strength of bone and muscle than domestic birds. Every part of their frame is formed for lightness and buoyancy, and the long beak, expanded wings, tapering tail, light and bony feet, all contribute to their rapidity of flight, and just equipoise in mid-air. Your correspondent tells us, that it is by the mechanical action of the wings alone that the eagle is enabled to soar aloft with his prey; we some of us labour under the delusion of supposing that birds can fly without their wings, but we do conjecture that the organic action called forth to direct and sustain their flight is more generally diffused; and I question much, if a bird was deprived of his body feathers, whether his wings would serve him to much stead; the flight of the bird is regulated by unity of parts and qualities, and by powers simultaneously called forth, and if this unity be disturbed or destroyed, the powers of flight are disturbed or destroyed also; thus the overloaded eagle becomes an easy prey to the fowler. I am willing to admit the correctness of the well-known similitude of the mechanical action of steam and the mechanical action of the living organic body, and can readily suppose that locomotion can be given to a body, similating in effect to the organic action of a bird, but I cannot admit the philosophy of your correspondent, that muscular energy alone, supplied from the consumption of food, is all that is requisite for the flight of birds, and I do think, that if he read a few more of the many volumes written upon the functions and attributes of birds, his knowledge of the laws of flight will become expanded.

Chepstow, April 4. A NATURALIST.

[We have given insertion to the letter of our correspondent, although, it must be observed, that it bears out on the question mooted by Mr. W. H. Phillips, in our last, which pertained more particularly to aerial navigation, or the transport of bodies, by means of steam or other appliances.]

"THE DAVY," AND NELSON'S MONUMENT.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I cannot but think that your correspondent, Mr. *Dunkin*, is a little too captious and dogmatic, and by no means so invulnerable as he seems to think himself. The "*Davy* safety-lamp" is, certainly, most dangerous where used as an "exploring lamp," and it was precisely under those circumstances that the two accidents I have already recorded occurred. It is sheer ignorance to say that all safety-lamps hinge on the principle of that of Davy, or are modifications of it. The principle assumed by Davy is that of a cooling power, so influence, while that of Upton and Roberts depends entirely on the arrangement, that no more air is admitted than can be effectually and completely consumed by the wick flame.—It appears that the capital destined to surmount the stone column of Nelson's monument, with its relative, braces, and cones, is to be of *bronze!* Unprotected by a lightning rod, such a terminus must be specially susceptible of becoming the victim of the meteor; and, let it not be forgotten, that the Nelson monument is in juxta position with a spire which has already withstood the destructive effects of lightning. J. MURRAY.

April 6.

IRON TRADE—WALES AND SCOTLAND.

TO THE EDITOR OF THE CAMBRIAN.

SIR,—Having to a late Cambrian, and on other occasions, seen the endeavours of many, rising their best to prove and bring into action and practice the measures, called bounty-land, also to prove that the great quantity of metal yielded by it, is the chief cause which enables the South Iron manufacturers to sell their iron cheaper than the Welsh manufacturers can, and that it would be a great benefit to this country if a smaller sum were found here; accordingly, Sir, I shall endeavour to prove to your numerous readers the facts of the benefits that would arise from such a discovery. It is stated that the blackband is sometimes yields 70 per cent.; but, to be rather under than over, we will say 50 per cent., or, in other words, that half the weight of the ore will be lost in iron, after being carefully and properly extracted; and, according to that scale, I shall take an average survey of South Wales; where there are, on a near computation, about 127 blast-furnaces, and supposing each furnace to produce 670 tons per week, and that one-twelfth of that iron would be made from the blackband ore; or 117 multiplied by 12 would be equal to 1404 tons, which, divided by 10, would be equal to 270 by 1404, the sum required. According to the common scale, to make the required quantity, it would take 1710 of common iron ore, which, on an average, on the basis of a load or pit, is 40 cwt. 1 qr. 20 lbs. less making the weekly amount of cash paid for the working of the said quantity, 1710. But the blackband (as I am told) ore wanted and calcined at the Blaenllet Works at 4s. per ton, making, according to the 50 per cent., as the cash ton of iron, so 570 at 4s., would be 114*l.*, leaving a deficiency of 796*l.* We will say, 736 families at 1*l.* per week on an average, and each family to sustain six persons, so 4416 persons—viz., men, women, and children, would be deprived of their means of living, and most of them unacquainted and incapable of other work. Thus we find that improvements of the like diminishes the call for labour, and, according to the old Welsh proverb—"When the work ceaseth, hang the servant." TUBAL CAIN.

Merthyr Tydvil.

MINING IN IRELAND.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—In your Journal of the 19th instant, I forwarded some observations on mining in Ireland, which I was pleased to observe you had inserted. As to the past, it is now of little consequence, if parties avoid falling into the same error in future; I shall, therefore, trouble you to insert the following observations, feeling confident that if the attention of capitalists was drawn to the vast capabilities which really exist for the profitable investment of a portion of the capital which is now lying idle, or at a very low rate of interest, parties would not be backward in availing themselves of the wide field which might so easily be opened for a most profitable and advantageous investment; and perhaps the following observations on the extent of the mineral district of the South of Ireland may be acceptable for the information of parties coming to this country.

The eastern part of the district may be said to commence at Clonakilty, where I have observed strong indications of carbonate of copper in different parts of the country. Though the attention of adventurers has not yet been attracted to this part of the country, except in the working of a manganese mine in the neighbourhood of Glandore, from which quantities are annually shipped to Liverpool, and I lately heard a purchaser say the quality was quite as good as the best Devonshire; in the neighbourhood of Castle Townsend and Skibbereen equally strong lodes have been discovered—but, again, nothing has yet been done towards laying open the riches of this part of the district. But about ten miles to the west of Skibbereen, near Ballidehob, the traveller will find himself in the very heart of the mineral district. Indications of copper, and strong and valuable lodes, are daily discovered in this neighbourhood. It extends from Roaring Water to Schull, a distance of about ten miles from east to west, and about the same distance from north to south; bounded, on the north, by the Bay of Bantry, on the south side of which shores lead ore, rich in silver, has been discovered. The strata of this district is most congenial for copper, being composed of white killas, or clay slate, forming junctions with fine soft porphyry, or elvan, and, in depth, quantities of quartz; though, at Wheal Bandon, the spar is from four to five feet wide at the surface, intermixed with green carbonate of copper and a small quantity of grey ore, and at Roaring Water the main lode is wholly composed of quartz, in depth, and where I have lately observed some very beautiful specimens of crystallised yellow copper coated with grey, being the same description as the Bearhaven Mine, which has proved so very profitable to those concerned. I shall close my observations by stating that the district from Schull to Crookaven is, in my opinion, quite as good as the portion which has been more explored. It is about fifteen miles from east to west, and from five to six from north to south. The extreme wildness of this part of the country has, I consider, prevented parties from commencing operations to the west of Schull. A WELL-WISHER TO IRELAND.

Ballidehob, County Cork, March 30.

[We are at all times well pleased to receive information from the Sister Isle, but, with all respect to "A Well-Wisher to Ireland," we must say, that his information is scanty, and to effect any real benefit, must be more minute, without it being "at all" necessary that it should be more voluminous.]

ON THE EXTRACTION OF SULPHUR FROM PYRITES.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I send you some extracts from a translation of a German work, of Monsieur *J. F.* Heuckel, late Chief Director of the Mines at Fribourg, in Saxony, on the extraction of sulphur from pyrites, in the year 1757, which is interesting, as showing, by the rude processes then pursued, the practicability of burning the pyrites into crude sulphur; and leading to the conclusion that, with the increased chemical knowledge of the present day, pyrites may be turned to good account on the mines themselves.

Rathdrum, March 25. E. B.

Pyrites is worked for sulphur, either expressly or incidentally; in the one case it is driven, or forced off in pipes or retorts, in the other procured in the course of roasting the ores. By the former method, both here, at Fribourg, and at other places; by the latter, particularly at the Harts, as follows, according to Lohneis*:—

"They take (says he) of the small ores—that is, both of the small sweep from the ore of the grooves, and from the vitriol works, or lies, called also *vitriol small* and *kernel*†—and sheet it on a heap, one foot high by twenty feet broad and long; on this there is wood laid close together the whole breadth of the small ore, and piled three feet high; then, on this wood the ore is *shot*, in greater or smaller pieces, as it comes to hand, and to one roast are taken between 1200 and 1600 measures, each weighing five and a half *centners*; the roasts are made square, and raised nine feet high, and covered all over with moistened small ore, for a large *hand thick*, and struck close and firm; from the middle of the roast is reared a brand of dry wood, reaching quite through the ore, and overtopping the roast; the roast being completed, the smelters take from the huts a bulls-full of hot slags, pour them in on the brand set upright in the roast, and the wood generally burning down in a night's time, the ore, if left to itself, will continue burning for eight, nine, or ten weeks. There is much sulphur procured at present from the Rammelsberg ores, of which the old workers knew little or nothing; and much more may still be obtained by proper management. For instance, then, the covers of the roasts being, as is said, burnt down, they become soft by the great degree of heat, and then, with a piece of timber, they are struck full of round holes for the sulphur, which carries into them, to be licked out with iron ladles. The vitriol-small and kernel here employed should seem to promote the caking of the covers, to prevent the more easy evaporation of the sulphur."

Instead of the above holes, they now make certain sinkings, or pits, about two foot in diameter by a foot and a half deep, which are struck firm with vitriol-small, and stand somewhat the length of one diameter. Now, the roast burning from below upwards, the sulphur collects into these pits, out of which it is laded, with iron ladles, into moistened tubs; it would require no fining did not some of the vitriol-small drop into it in the lading, and thus taint the sulphur. The first fining is performed in iron coppers, wherein the sulphur melts, and, after the coarser impure parts are sunk to the bottom, it is cast in moulds, what then remains behind it, in the second fining, trouled like the crude sulphur.

The method of working sulphur, expressly, at Fribery, M. Reuder‡ describes thus:—"For the purpose there must be a driving and a fining furnace, both to be properly prepublished. The sulphur, or driving, furnace is built in length in such a manner as, between the two front, or head, walls, to admit of either seven, thirteen, or fifteen pipes to reach across from wall to wall; also, lower, there are either six, seven, or eight pipes, placed at a height; over the spaces between these is another row of five, six, or seven pipes, also at a height—so that each pipe may come to be within the reach of the fire, and become heated. The width of this furnace must be determined by the length of the pipes. Over the pipes, from one head or front wall to the other, is turned, or cast, a flat arch of tiles, with a number of holes left, of the size of a small arm, for discharging the smoke of the wood. The pipes are made of good clay, or clay, and two inches and a half thick, and nine inches wide at the mouth, which is flat in the under, and somewhat round in the upper, part, and to be so made that a clay plate may be shoved down over it, and again removed occasionally; from the mouth they run tapering off to the other end, where the sulphur runs out, leaving an aperture only of an inch. Behind where the sulphur runs out there is left in the wall a nelle, wherein the lead pans may cause to receive the vessels of the lower pipes, and for each upper pipe a small wall is raised for their pans; the pans are square, with a flat half cover, reaching half way; some cold water is put into the pans for the sulphur to run into, and be quenched in. The furnace is heated with billet wood, laid on a grate, through which the ashes may fall down. You must be well acquainted with the nature of round pyrites, as all of them cannot, equally, with profit be worked for sulphur; also know what quantity may be lodged in at once, and heated in eight hours. When clayen pipes are employed, for the week about 120 centners of pyrites ought to be worked, eighteen centners for the twenty-four hours, and six centners worked each time for eight hours. From pyrites of an ordinary yield there may, in a week, about five and a half centners of fine sulphur be generated—the centners of pyrites reckoned at four and a half pounds. The pipes, as was said, must be made of good stuff, and not overburnt, as the pyrites is apt to swell and heave, which might endanger the pipes; also, the arch next over the upper pipes to be left open, there being then a greater degree of heat, and a better yield of sulphur generated. The strain sulphur, when there is a quantity of it together, is done, out of the lead pans, into shining fining pots of iron, which are lodged in the fining furnace, and fitted with their bottom and northern fourthpans; and then the sulphur, drawn, or ladled, off, and then, from the receivers, tapped off into other pots, wherein it is suffered to cool a little, after which it is cast into moulds, in long rolls, and priced as it respects. In the fining there is a 10% part waste. In the fining pots, after having off the sulphur, there remains behind the drum, called sulphur slags, which, whilst still hot, are to be removed with an iron ladle. The pyrites thus worked in throwen oxide, and some of it used as additions in the operations of ores smelting, and the rest of it boiled for sulphur, but what is designed for this last must be for thirteen weeks in the open air before it can be used."

The method of working for sulphur at Dylta, in the province of Smeria, in Sweden, we shall next consider. This is one of the greatest works for sulphur in the whole kingdom; and here they also boil for vitriol and alum. The matters from which all these things are drawn and prepared are a yellow-greenish dark shining pyritaceous pyrites, and breaking them in the high mine, out of great depths, but beneath the coarse coal earth, in low earth or levels; also in the firm rock or stone; and are in layers, or stopes—that is, like a flat sword, at between three and four fathoms, under a cover of common stone about a degree thick. When they would work them in, they clear away all to the ore, on which they lay wood to burn, and on the finished ore pour cold water, which renders it the easier to work, after which they break it to pieces, and convey it on a long together; and, as all this is done in the open air, they can only work at it in the spring and summer seasons, for, in winter and autumn, the ground, which is over with, and thereto concerned, is generally half full of snow and rain. In the working seasons, twenty large iron pots,

* Sy. the cast Iron Ores, p. 46. † Kernel is the best, or richest, small ore.

‡ Berg. Bauwissgesch, I. 1, cap. 14, p. 112.

or retorts, weighing between eighteen and twenty-one centners, are filled only a third, as the pyrites greatly heaves by the heat, and these pots are placed in a vaulted furnace, in such manner that the bottom of the one shall touch on the neck of the other, and on both sides of the furnace are ten apertures, five in the upper, and as many in the under row; then the iron receivers are fitted on to the pots, and well secured with luting, and fire being made under the pots, the coarse sulphur is turned off into the iron receivers, at the rate of four and a half centners in twenty-four hours, according as the pyrites happens to be richer or poorer in sulphur, whilst some of the finest parts, exuding through the pores of the iron, and congulated by the cold air, yields pure *drop sulphur*. Whence—in summer weather, every morning, about sun-rising; in harvest and winter, every evening—the sulphur is removed out of the receivers, and the desulphurated pyrites out of the pots, and replaced with fresh, as before. The sulphur is again melted, in an immured pot over a gentle fire, in order to its fining, and then cast in the usual moulds. The desulphurated pyrites is laid on heaps in the open air, and the following year, according as it happens to be moistened with rain, begins to take fire, and burns so long till all the sulphur still remaining therein be quite consumed.

Then for the more ancient workers went; but the new, discovering that the desulphurated heap was impregnated with vitriol, and the more so the longer it lay exposed, conveyed this refuse into large vessels, poured water thereon, and made a lie. At present, however, it is put into lead pans, and boiled for some hours with water; from the former this lie is conveyed into other lead pans, therein to boil till the vitriol master sees it is fit to *shoot*—who must have the dexterity of attempting it by pouring in some of the first lie; now, after the lie is boiled, or soaked, to a proper degree of thickness, the fire is lowered, and the lie poured into coulers, there to stand till the vitriol shoots into crystals on the birches twigs put therein; what remains unshot is again boiled, along with new desulphurated and vitriolated pyrites, in the second pans, and further brought to crystallisation. The number of boils is two; of pans to each hut, four; always two for crude lie, each weighing thirty centners, and standing on large iron grates that they may come by no damage; and yet the pans for the good lie last not above five or six years, and those for the crude not above three; in regard to the earth burnt to them adheres so firmly to the lead, that, if never scraped off, the lead must needs melt. Now, this lie—after all the vitriol is shot and removed—the alum-boiler takes to his hut, pumps water thereon holding metallic particles, and adds a lie of wood ashes, whereby the green vitriolic colour is discharged, and the white colour of alum procured; it is boiled over again for twenty-four hours in lead pans, and afterwards suffered to cool and shoot; then the alum is fined and done. The remaining lie is put into a large vessel, and, after standing for eight days, it concretes, as a crystal, into the figure of the vessels, and afterwards is broken in pieces, and is saleable or fit for the market. There pass at least between five and six weeks before a vessel, which holds about eighteen centners, can be filled with alum; and, when boiled in harvest or wet weather, or left too long in the vessel, it generally turns of a somewhat greenish cast.]

[We are well pleased to find our correspondent "E. B." again appearing in our columns. The subject on which his present letter treats is one in which we have ever taken an interest, and trust, using his own expression, "that, with the increased chemical knowledge of the present day, pyrites may be turned to good account."]

THE IRON TRADE—IRONMASTERS' INSTITUTION.

[From the *Midland Counties Herald* of Thursday.]

A pamphlet, by Mr. *P.* P. Mackelean, C.E., to be published to-day, is likely to attract considerable attention among those who are engaged in the iron trade, the subject being one of general importance, and of peculiar interest at the present moment. The pamphlet is entitled *Suggestions to Ironmasters on increasing the demand for Iron; also, to the Ironmasters of Staffordshire, on competing with those of Scotland and Wales.* Mr. Mackelean's chief object is to develope his plans for increasing the demand. He says,

"To trace all the causes of the present depression in the iron trade is beyond my purpose; suffice it, that the depression exists, and that it consists in the production of iron being greater than the demand. It is plain, therefore, that the production must diminish, or the demand increase, before a balance can be established. To diminish the production, is at once to be satisfied with partial ruin; to increase the demand, is again to prosper. The demand may be increased in two ways: 1st. By making known to the world *all* the uses of iron which exist; 2nd. By showing to what new uses iron may be applied with advantage."

To effect these objects, Mr. M. proposes that the ironmasters should form an association, and that they should subscribe, as members of the "Ironmasters' Institution." The principal objects of this society would be to diffuse information as to the many uses to which iron is applied, in various countries. It is proposed to accomplish this by means of essays, for which premiums would be offered, and by exhibitions of models, &c., in some central situation. The author explains at considerable length the details of his plan, for which we must refer our readers to the pamphlet itself. We have space for only one or two brief extracts:—

"Iron is used for many purposes in England, for which other metals and substances are used on the continent; and the same may be said of different parts of England itself; the same, also, of different towns in the same part of the country, and of different branches of trade in the same towns. We may take an example from agriculture, as that is prevalent in all countries. Ploughshares are of wood in some parts of Europe, and so also are harrow teeth; in England they are both invariably of iron. In some parts of England, however, the framework of them implements is of iron, and in others of wood; these two varieties may be found, and only in the same neighbourhood, but on the same farm, and in the same field. The same may be said of nails, which are of wood in the forest portions of Europe and America, both for building and for other purposes, such as shoe-making; while here they are of iron. Railings, gates, and hurdles, are of iron as well as of wood, in England; but in other countries metal is seldom thus used. We may find many examples in towns. Roofs on the continent and in America have wooden framing, and sometimes tin—that is, iron plates tinned, as a covering; this mode prevails in one of our own colonies—Lower Canada. In England, on the contrary, these are roofs with iron framing, and with slates or tiles as a covering; and there are others with both framing and covering of iron. Many such variations exist; for, in the same town, we find almost an equal number of iron and of wooden window sashes; and we find, also, both iron and wooden wheels for vehicles, and both iron and wooden axles for wooden wheels. * * * * *

"Before knowledge can be diffused, however, it must be obtained. First, then, there must be collected, in the institution, such books, manuscripts, drawings, and models, as contain this knowledge; the method of doing which is simple, as it would consist of offering premiums for the matters required. A premium should be offered for the best work *On the various uses of Iron in England*; this work should contain a short description, or mention, of the uses for which iron is employed, but not a detailed description of each particular use. The prize should be awarded to that work which contained the greatest enumeration—bearing in mind, also, that the mention of things which consumed large quantities should be accounted better than the mention of things which consumed small quantities. A second premium should be offered for a similar work on the uses of iron on the continent of Europe; a third for its uses in America; a fourth for its uses in India and China; and a fifth for its uses in Africa. These several works should be examined by the officers of the institution, and reported upon to the committee; after which the committee should make any further examination of their merits which they thought proper, and award the prizes. These works would realise, in some measure, the first part of the principle in discussion; as, in their possession, the institution would, at once, contain a vast store of knowledge fit for diffusion. These prize essays might be either published in the form and language of the writers, or thrown together into one work by the secretary, and then printed and sold. More than one purpose would be served thereby; as the ironmasters and workers in iron would be acquainted with the subjects of manufacture in all countries, and would, consequently, know what markets existed, and how to supply them; and besides this, the committee would have materials for subdivision into parts, upon which separate works might be written under premium of premiums."

Mr. Mackelean also recommends that premiums should be offered for works on the existing use of cast and wrought-iron in bridges, on ship building in iron, on the use of iron in architecture and building, on the manufacture of machinery, and on agricultural implements, &c. Having explained the particular branches of information which would be supplied by these works, Mr. M. says:—

"Thus, then, by books, by drawings, and by models, would the knowledge of all the existing uses of iron be diffused over our own and other countries. Our customs would be known far and wide, and the customs of all other nations would be known to us; then would the use of iron be increased everywhere, and we should be able to manufacture for any and all parts of the world, as yet unsupplied. If we only taught our people knowing distinctly the wants of the Chinese, what an immense field of manufacture would at once be laid open to them; but now they wish to vent for any such information, because no system has been established of obtaining it. It is true, that merchants in the east send home orders for goods; but such merchants do not possess half the knowledge that may be acquired by persons who do not engage in trade, but who would be happy to write on any subject. I cannot in this place forbear mentioning, that when in Upper Canada, I found that axes and horse-shoes, among other things, were to be had in the large towns, of English manufacture; but to a backwoodsman those articles were perfectly insignificant. The axes were utterly worthless, both as to quality and shape, and no man who knew how to chop, would ever touch them; so that the great sales of ornaments were accomplished in England. In consequence of this, axes are made in every village by the blacksmiths, of a high price, but of a proper form and quality. The horse shoes certainly excel with customers in the towns, but they are unfit for the country on account of their weight and brittleness. The shoes used are very light, as the roads are soft earth, or timber laid crosswise, which occasions little or no wear; all the same time the iron is very tough and malleable, such as will bend repeatedly without fracture."

CONFLAGRATION OF A COAL MINE.—A volcano of a novel kind has broken out in the neighbourhood of Kænigshutz, a town in Silesia. For twenty years past a mine has, which occasioned no alarm, has burst in the coal mines of that district; but recently it has assumed an alarming character, shooting out immense volumes of flame, which threaten destruction to the surrounding buildings, and to the vast forests of the country. A steam-engine has been established for the purpose of discharging water into the mines; but, at the latest accounts, this machine had been in action for seventy-two hours without producing the slightest effect.

TAFF VALE RAILWAY.—It affords us much gratification to be able to state—a feeling we are sure largely participated by all interested in the railway—that, in consequence of an amicable settlement of the differences hitherto subsisting between the directors and Mr. Powell—that that gentleman has already commenced bringing his coal down the line. This arrangement —effected, as we learn, by some judicious concessions on both sides—will necessarily increase the traffic on the line, as will be apparent from the accounts of the last two weeks in another part of our impression.—*Merthyr Guardian.*

† Leopold erläut. Beschreib. der Chemie von mineren, an. 1761, at Br. Transcendent., p. 66, 69.

MINING CORRESPONDENCE.

ENGLISH MINES.

HOLMBUSH MINING COMPANY.

April 3.—In the 110 fathom level, west of Wall's shaft, the lode is eight inches wide, and worth 5*l.* per fathom. In the 100 fathom level west the lode is twelve inches wide, and worth 7*l.* per fathom; in the winze sinking below this level the lode is ten inches wide, and worth 9*l.* per fathom. In the 100 fathom level, east of Wall's shaft, the lode is small and poor; in the cross-cut, towards the Flapjack lode, the ground is rather hard for driving; the cross-cut north of Hitchins's shaft, at this level, towards the lode, is now driven 2 fms. 3 ft. 7 in.; the lode in the stopes, in the back of this level, is eighteen inches wide, and worth 38*l.* per fathom. The eighty and ninety fathom levels, west of Hitchins's shaft, are still progressing towards the lode. In the back of the ninety fathom level the lode in the eastern stopes is twenty inches wide, and worth 36*l.* per fathom; in the middle stopes twenty inches wide, and worth 40*l.* per fathom; and in the western stopes the lode is two feet wide, and worth 50*l.* per fathom. In the eighty fathom level, east of Wall's shaft, the lode is six inches wide and unproductive. The ground in the cross-cut, at this level, towards the north lode, is favourable for driving; the lode in the stopes, in the back of ditto, is eighteen inches wide, and worth 28*l.* per fathom. In the seventy fathom level, west of Hitchins's shaft, the lode is six inches wide, producing stones of ore. In the sixty-two fathom level, east of Bray's shaft, the lode is small and unproductive; ditto, west of Hitchins's shaft, the lode is nine inches wide, producing stones of ore. In the deep adit, east of Lady Beam shaft, the lode is sixteen inches wide, composed of capel, spar, mundic, and a small proportion of copper ore. The pitches are without alteration. We weighed, on Friday last, February ores, 291 tons, 5 cwt., and sampled March ores, computed 205 tons.

T. Richards.

BEDFORD UNITED MINING COMPANY.

April 3.—At Wheal Marquis, in the old mine, nothing new since last report. In the new engine shaft, I am happy to say, within the last two or three days, our prospects have much improved, the lode being three feet wide, and, in the eastern end of the shaft, carrying a leader of black ore, fifteen inches in width, with an appearance of being very rich, and indicating a good deposit of ore. The ground is favourable for sinking, which is being accomplished with all possible energy. In the ten fathom level east the lode is two feet wide, producing about two tons of gossan ore per fathom, and having a very promising appearance. Ground favourable for driving. The tribute pitches are without alteration. We shall sample at the end of this week about thirty-six tons of ore, ten tons of which will be from the new engine-shaft.

J. Phillips.

TREGOLLAN MINING COMPANY.

April 3.—The sixty-two fathom level, east of Baker's shaft, is driving on the south part of the lode, which is at present eighteen inches wide, producing a small quantity of ore, but not worth saving; if there be no alteration in this end in two fathoms more it will be necessary to cut through the capel part of the lode. I have set a winze to be sunk on the north part of the lode in the bottom of the fifty fathom level; this winze is east of the sixty-two fathom level, and is ten feet north of the old level at the fifty fathom level; the lode in the winze is at present kindly—it will produce about ore enough to pay for sinking—the price being 45*s.* per fathom. I have also set a cross-cut west of this winze, to drive north from the old level at the fifty fathom; this will prove whether the lode is gone behind the old level or not; two men are cross-cutting, and will, in a fortnight, or less (if the ground continues as at present) prove it. Six pitches are at present working in the mine—besides the stamps, and a pitch on the skimpins, or halvans—three at 12*s.*, one at 10*s.*, and two at 9*s.* in the pound.

H. Williams.

UNITED HILLS MINING COMPANY.

April 4.—At the seventy fathom level, in driving east, the lode is five and a half feet wide, three feet ore of fair quality; in the western end the lode is three and a half feet wide, producing a small quantity of ore on the north part. At the sixty fathom level, in the eastern end, the lode is four feet wide, with a very promising appearance, but not producing much ore; in the western end the lode is five feet wide, two feet on the north part ore of good quality. At the fifty fathom level the lode is three feet wide, good ore. At James's shaft the lode is three and a half feet wide, very throughout, but not rich. At the forty fathom level no alteration in this end since last reported. At the twenty fathom level, at Wheal Sparrow, the lode is three feet wide, two feet of which is producing ore of fair quality. At the adit end the lode is one foot wide, producing but little ore.

N. Langdon. S. H. Pearce.

CONSOLIDATED TREFOIL MINING COMPANY.

April 3.—The fifty fathom levels, east and west of Heawood's shaft, are much as last reported, the men having been engaged in the past week cutting a plat at that level. The lode in the forty fathom level, east of Heawood's shaft, is one foot wide, very good tribute ground. The Blind Will's lode, east of Morcom's shaft, at the adit level, is one foot wide, unproductive. The tin lode in the back of the adit level, east of Morcom's shaft, is much as last reported.

H. Williams. J. Morcom.

WEST WHEAL JEWEL MINING ASSOCIATION.

April 3.—Buckingham shaft is now down two fathoms below the eighty-five fathom level; we intend to sink thirteen fathoms below its present depth, to make it a fifteen fathom lift. The eighty-five fathom cross-cut south is favourable for driving. The seventy east on south branch is worth 6*l.* per fathom; a little more spar in the lode. The seventy east on Wheal Jewel lode is worth 20*l.* per fathom; this level west is worth 14*l.* per fathom. The south adit shaft sinking below the seventy—ground, a little harder. The fifty-seven east on Wheal Jewel lode is worth 12*l.* per fathom. The forty-two east on same lode is worth 15*l.* per fathom. The lode in the winze sinking under the fifty-seven west on Wheal Jewel lode is improved—worth 8*l.* per fathom. In the fifty-seven cross-cut south we have intersected the new lode in the past week, and intend to drive east on it without delay; it is a lode of great promise.

Stephen Lean.

CORNUBIAN MINING COMPANY.

April 3.—The lode in the seventy fathom level is about two feet wide, principally composed of fluckan and mundic. The lode in the sixty fathom level is two and a half feet wide, producing good work for lead; this level is passing through good ores ground, and still improving. Murray's shaft is sunk six and a half fathoms below the fifty—ground favourable, but cannot sink very rapid, in consequence of water; we shall communicate this shaft to the sixty end this month. All necessary operations are in force for the buildings of the new engine. The new plunger works well; we have now seventy five fathoms of 17-inch lifts in excellent order. Saturday last being our regular setting-day, we set a new pitch in the back of the sixty fathom level; such was the competition that it was taken to raise twenty-two tons for 5*l.* We have twenty-five men and three boys on tutwork, and forty-four men on tribute, varying from (exclusive of the pitch mentioned above) 3*l.* 15*s.* to 6*l.* per ton.

J. Webb.

PINCROFT MINING COMPANY.

April 3.—The lode in new engine-shaft continues its size with a little less underlay, and has improved for copper since my last, now worth near 30*l.* per fathom. The sixty end east is not yet quite got through the cross-course, although it has drained the level above quite dry to the east of same cross-course. We have this day commenced driving south to cut the lode to the west of the western cross course. At the fifty fathom level the lode was thrown south by the same cross course about eight feet; about the same heave may be calculated on at the sixty. We have still a very promising lode in the fifty west, and in the stopes in the back. The fifty east is producing good stones of ore. The lode in the forty west is increasing in size, and improving in quality, now worth 8*l.* per fathom. The thirty-end west continues much the same as for some time past, worth 7*l.* per fathom; driving at 3*l.* per fathom. The ground in Palmer's shaft is more favourable for sinking than it has been. The fifty five west is still laying open ground that will work at a moderate tribute; the winze much the same. In the south mine we are also laying open very promising ground.

W. Paul.

TREGLOSIOW CONSOLS MINING COMPANY.

March 31.—The eighty, east of Christoe, is 8 fms. inches, kindly, with stones of ore. The eighty west we are cross-cutting. The seventy west is three feet wide, worth 7*l.* per fathom, and is a kindly lode. The sixty west is five feet wide, worth 9*l.* per fathom, and has a very favourable appearance. The sixty east is three feet wide, at present poor, but we soon expect ore in this level. The fifty west is two and a half feet wide, kindly, but poor at present. At Good Fortune the fifty west is two and a half feet wide, worth 6*l.* per fathom; this level east is worth 4*l.* per fathom. No alterations in any other place.

W. Symons.

FOREIGN MINES.

DOLAOCH MINING COMPANY.

San Clemente, Feb. 12.—The mines of this district have lost, during the December quarter, about $21,000—an average of $1600 a-week. M. Pinconi has made some rather rich finds in the workings, and one of the mines has improved a little, as that, with a produce of $1600 a-week for five months, by which time your orders may have arrived, is sanguine I may be able to ground. The money then gained at my disposal are—cash, $12,000; ditto, due in May, $8500; value of ores, $7000; and shares, excess of contingencies, $7000—making a total of $35,000. The mine of San Nicolas may still be considered virgin, for it has not been explored to one-fourth of the extent of its ground, and what remains may be so good as what has been gone over—the poverty of the vein in one part being no argument against its richness in any other part. The mines of San Clemente is much more watered; yet, even here, in the east, there is a good deal of virgin ground, and the continuous mine of La Luz, on the same vein, may at any time be resumed at no very heavy, and in depths where most of the Zacatecas mines have given their greatest bonanzas, it is entirely unexplored. I look forward to the completion of the cross-cut of San Crispin with much interest and expectation. The whole Campahaus-hill, and a new sett, which has this week been added to our contracts, is virgin, containing the powerful and rich lodes of Melanoche, and as these mines have already given, even in their present shallow workings, specimens of very rich ores, we have proof that they contain wealth.

Feb. 14.—The losses in the Zacatecas mines for the month of February have amounted altogether to $9492; the loss, however, would not have been so great had all the ores been beneficiated in the month, but the silver in February, from ores properly belonging to January, will amount to 3516 mcs.

Mine Report.

Feb. 13.—*San Clemente.*—The cross-cut of La Luz has been driven at the rate of two and a half varas per week—ground favourable, and gives a prospect of driving even faster. The cross cuts of San Crispin and Tyro General will now be abandoned, having cut the vein of San José—poor, and similar in its nature to what we have known it in other parts; the laborio workings in this part of the mine continue much the same, with the exception of some improvement in the transversal vein, and at El Carmen, which has taken place lately. The ore extracted from this mine amounted to 756 cargas.

San Nicolas.—In Buen Suceso we have continued the rise of La Bolsa with spirit, in which the ores, though not so wide, are equally good in point of ley. The total of 152 cargas were received from these points during the month. In San Francisco level we have continued sinking both the winze on the Buen Suceso vein and that in San Florentino; ores have been raised from both places in moderate quantities. The laborio of La Luz has produced, in the course of the month, about 700 cargas of ore.

Melanoche.—In this mine nothing has been done but keeping the drainage, and, with two Malacates whims, and the occasional assistance of a third for a fortnight in the two months, the water will be kept below the second cross-cut in Rondanera.

San Rafael.—Good progress has been made in the Buen Suceso level south—the driving has averaged three varas a-week, though the ground has lately become much harder.

Vista Bella.—No variation of importance has taken place in this mine; two varas a-week were driven during the month—meeting occasionally with a few stones of ore.

REAL DEL MONTE MINING COMPANY.

Mineral del Monte, Feb. 3.—On the 28th ult. we reached the wall of the vein in the San Antonio cross-cut, Acosta; since which we have cut into it about eighteen inches; adjoining the wall there is a kindly branch four inches wide, of azogue ore, but what we have yet seen beyond that, is a hard quartz, and poor. We have not yet cut through the vein, and, contrary to expectation, there is scarcely yet any increase of water. On cutting through the vein we shall immediately drive east and west, in the hope of meeting with similar ores to what we have seen above. In the Acosta old shaft, which is to the west of the cross-cut, and now sinking, there is a branch of good ore, about two feet wide. The winzes to the eastward are not quite so good as they were; the other parts of Acosta remain in much the same state as last described. The forty vara level, driving north of El Sacramento, had become poor, as mentioned in my last, and, to assist our returns, we had commenced working in the back, upon the bunch of good ores we had passed through. The vein, however, has proved so soft and loose, that it has crushed down from the twenty-five vara level, and filled, for the time, the forty vara level, making it necessary to change our plan of working, by going above, and proceeding from the twenty-five vara level downwards.

Feb. 21.—I now beg to advise you, that the agreement for a new license to export bars has been concluded, and I forward herewith a copy of the document given by the Minister of Finance to that effect. We hope the present month's silver produce, with the forty-five bars of January month, will supply the ninety-eight bars required to complete the first 500 bars, and we have it in contemplation to dispatch the waggons again to the coast about the end of next month, or early in April, so that they may be enabled to take the greater part, if not the whole, of March produce, and thus make the remittance 145 to 150 bars. The works connected with the Dolores new engine are rapidly proceeding to a conclusion, and we hope to get this machine to work about the second week in March. The Dolores old engine being finally stopped, in order to clear away the old roads and pitwork, to make way for the new, the water from this part of the mine finds its way through the vein to Terreros, where it gradually rises, notwithstanding the Terreros engine is making as fast as possible. The principal workings at Terreros being, therefore, under water, the raising of ore from this part of the concern will be considerably diminished for some weeks to come. In Acosta old shaft the branch of ore has rather improved since the date of Captain Hosking's report; the last two parcels raised from this place have been assayed as follows:—Thirty-six quintals rough, 217 marcs per montes; thirty quintals small, 109 marcs per montes. Owing to the hardness of the vein where it has just been cut in the eighty-one vara level, very little trial has yet been made at this place; we, have, however, met with some good stones of ore, and hope soon to find that the rich branch in the old shaft continues downwards. The run in the forty vara level, north of El Sacramento, has occasioned more hindrance than we first expected. Every exertion, however, is being made to secure and prevent any further run from the twenty-five vara level, and, when this is done, we shall commence clearing out, so as to reach the ore at the forty vara level.

UNITED MEXICAN MINING ASSOCIATION.

Guanaxuato, Feb. 17 *and* 20.—I beg leave to refer to the enclosed duplicate of my last letter to the court, dated 20th January, &c.

Mine of Rayas.—The general operations, since the date of my last report thereon, do not appear to have undergone any variation worthy of remark on the present occasion, whilst the new point of fair ores, discovered in the particular part of the vein, continues to present the same encouraging aspect, and has rather increased, than otherwise, in produce, as well as in quality. The monthly returns for the four weeks ending the 28th ult., were rather greater than the preceding month, and are as follows—viz.:

	Mine sales.	Smeltmen sales.	Total.	Outlay.	Surplus.
Jan. 7 ..	$5171 4 0	$2026 7 4	$7197 3 4..	$3079 4 5....	$4117. 6 7
.. 14 ..	6397 0 0	2861 2 0	9258 2 0....	4644 3 5....	4613 6 5
.. 21 ..	6557 4 0	3579 2 4	9431 6 4	4426 1 5....	5005 4 7
.. 28 ..	5616 4 0	3446 3 9	9062 7 9....	4042 4 7....	4989 3 1
Total surplus.....					$18,132 4 4

The share of which belonging to the association, for the 12½ bars mortgaged for the payment of the mine debt, amounted to $10,233 2 5, and has been received—reducing the said debt to $853,339 0 7.

Rayas New Contract.—This subject still continues in abeyance.

Quicksilver.—The invoice of the sixty bottles shipped per steamer *Tay*, amounting to 95*l.* 0*s.* 1*d.*, also that for the same quantity per steamer *City of Glasgow*, amounting to 93*l.* 2*s.* 6*d.*, have been received, and the amounts charged to the manager in conformity; and I beg to request that an additional quantity of 100 bottles be purchased, and shipped by the packet to Tampico, over and above the usual monthly supply (of sixty bottles), as my stock in store of this article has been brought down to a much lower figure than is prudent or desirable, considering the present consumption, which ought to increase in the ratio of the approaching spring weather.

J. N. Bandelaard, Manager.

Note.—A remittance of $25,199, in specie, has been received, and which is the remittance of $20,000—on the usual charges—promised in his letter of the 20th January, and also a further remittance of 2000*l.*, in two bills of exchange, has been received.

John Mayner, Secretary.

London, April 6.

IMPERIAL BRAZILIAN MINING ASSOCIATION.

Gongo Soco, Jan. 13.—I wish sincerely it were in *my* power to hold out more encouraging hopes of the prospects of the mine than present appearances justify me in doing. The vein at Curtis's crossing to be productive to the forty-one fathom level, was a matter of surprise and disappointment; further trials are still making at the back of the forty-one fathom level, east of Curtis's shaft. The wet and heavy state of the ground in the forty-eight fathom level has rendered it necessary to discontinue driving it, until it has drained itself; in the meantime a cross cut is driving to explore the jointings south of Cricket's shaft. At the sixty-two fathom level, from the decayed state of the horizontal rods, constant stoppages for repairs have taken place since the engine was put to work, so that Veary's shaft has not yet been freed from water; the repairs are now completed, and I hope no further hindrances will occur. So soon as the ground has been drained, further experiments will be made. An experimental cross-cut is now driving to the south jointings, from Jeaning's shaft, at the horizon of the thirty four fathom level. In the extreme western ground the appearance of the veins, and the jointings itself, is still unfavourable. Further trials will be made during the present month in the western ground, in the back of the fourteen fathom level, west of Bissey's shaft. In the Combe mine the veins are not more favourable than I reported in June last.

J. E. A. Cresswell.

Gold Report.—Total from 1st to 12th January, 10 lbs. 10oz. 2dwts.

ANGLO-MEXICAN MINING COMPANY.

Guanaxuato, Jan. 21.—*Cedro.*—In this mine we have employed ten barreteros in the pique of San José; the ore seems to have improved in quality, and the best points of the stone ore in the middle of the pique, tending downwards. In the pique of San Pedro we have been making a crosscut to link with two barreteros, with very little success, up to last week, when a small body of very rich ore began to appear, which is an inducement for continuing a little further. The produce for the week is estimated at 120 cargas.

Jan. 28.—In the pique of San José the produce is estimated at 130 cargas.

Feb. 4.—In the pique of San José we have employed eight barreteros, 3 milling their work to the best part of the mine; the consequence has been a renewed extraction, encouragement by a proportionate improvement in the quality of the ores—the produce is estimated at ninety cargas. In the cross-cut of San Edwardo the rock is looking a little more favourable. We have resumed the driving of San Felipe; the hilos of ore continue against the wall of the vein.

Feb. 11.—In San José we have employed eight barreteros, and the produce is estimated at ninety cargas; the ore, in appearance, is better than we have seen it for some weeks. The work of buscones is rather improving, and the three campos, before spoken of as giving good ore, have improved; the produce for the week, is estimated at seventy-eight cargas.

Jan. 21.—*Ascuncion.*—In the frente and pozo of Animas six barreteros have been employed, and the ore has improved in quality in both laborers; and, in the pozo, the quantity has also increased. The level of San Gregorio is advanced two varas, at $30 per vara; some spots of promising ore are appearing on the right hand side of the workings, against the lower wall; the produce for the week is estimated at sixty-four cargas. In the pozo of San Bruno the ore extracted is poor, but we do not abandon the hope of finding the good ore again, for which purpose we are opening some frentes to the north-west and south-east. The pozo of Animas has employed four barreteros; the quantity of ore has been less than the preceding week. In the frente of Animas the ore has improved. The cross-cut of St. Eduvidge has employed two barreteros; the rock indicates that the cuerpo is not very distant.

Feb. 11.—In the Bruno, some of the ore, taken out in the form of tierras, has looked rather promising. In the cross-cut of St. Eduvidge a hilo of ore has been cut, and the ensuing week will decide whether it is the cuerpo sought for. The pozo of Animas has employed three barreteros, in tolerably good ore, and in the frente the ore is of the same quality. About the middle of the week we commenced a new labore, called St. Teodio; no ore of consequence has yet been broken, but I think the quality will be found superior to that of Animas; the produce for the week may be estimated at sixty cargas.

THE QUICKSILVER MINES OF ALMADEN.

Madrid, March 28.—To-day the anxiously expected public auction for the produce of the mines of Almaden for the next four years took place in the office of the Minister of Finance, and Senor Salamanca was declared the contractor, at the price of 1630 reals ($8 1¼) per quintal of 100 lbs. Castillanos. The competitors were (besides the successful contractor, and the superseded house of Rothschild) the Bank of San Fernando, with whom were H. O'Shea and Co., bankers, and Senor Moreno, Seniores Jorda, Cuesta, Zulueta, Beffast, Lasanta, Albert, Cordero, Sevillano, Bertodano, Matthieu, Murga, and Diego Pardo; the last-mentioned appeared with Senor Salamanca as his *fiador*, or security. The proceedings were opened at two o'clock before Senor Calatrava and a junta of the chief authorities of the Finance and Treasury departments, when the sealed tenders, together with a note of the minimum price fixed by the Council of Ministers half an hour previously, were laid open. Only seven offers in writing were produced—namely, from Henry O'Shea and Co., at $64 per quintal; the Bank of San Fernando, $63¾ per quintal; Juan Sevillano, $67 per quintal; Hosea de Salamanca, $76 per quintal; Rothschild and Co., $70 per quintal; Diego Pardo, $75 per quintal. This latter was precisely the minimum fixed by the Government, as Senor D. Pardo's was declared the only tender available. Biddings were then commenced by Senor Wieseweller, who offered a real per quintal more, and the competitors followed slowly, scarcely in any case venturing to bid more than a real at a time during more than two hours, until the means and patience of all concerned were pretty fairly exhausted. It was the very opposite to an auction after George Robins's taste. Not the slightest eulogium was passed on the mining district of Almaden (one of the real wonders of the world), not the least inducement was held out to offer a farthing more; but all was conducted with dignified patience by Senor Borajo, one of the *gefes de section* of the Hacienda, as your readers may judge by the knowledge of the fact, that although the auction was announced to be closed at four o'clock, it was spun out forty-seven minutes longer, to allow every body to make up their mind, for the third and last time, most leisurely. Senor Bertodano only bid as far as 1621 reals per quintal; Senor Pardo ceased at 1641; Senor Lasanta, at 1550; Senor Cordero, 1579; the Bank of San Fernando, at 1604; Senor Zulueta, at 1606; Senor Wieseweller, for the house of Rothschild, at 1629; leaving Senor Hosea de Salamanca to be the conqueror, at 1630 reals per quintal.

It was evident from the commencement, that Senor Salamanca was determined to have it. His biddings followed exactly upon those of Senor Wieseweller, and as the contest for the last half hour lay between them both exclusively, it was obvious that the pauses were all on the side of the latter, and that his rival was beat on the triumph at any price. Every additional real was wrung by an apparently painful effort from the representative of the house of Rothschild, who, doubtless, recollected that he had yesterday enjoyed a monopoly of the precious produce of Almaden at $60 per quintal, and four years ago at only $44¼ per quintal. The difference in favour of the treasury of Spain is worth noting, being per annum $21¼ on each of 32,000 quintals of mercury, or a yearly improvement of $475,000 in hard cash at the least, supposing that the produce is not increased above the present amount, an improvement which is, in a great degree, to be attributed to the persevering energy and determination of Senor Calatrava to listen to no private claims or interest, but to persist, undeterred by opposition, from the pursuance of his enlightened plans for the improvement of the resources of the nation. He inquired, in conclusion of this important adjudication, if any one had any objections to make to the legality of the proceedings?—and, notwithstanding the clash of pecuniary interest and feelings pervading the Chamber, was assured by all (and by Senor Wieseweller in particular) that not the slightest doubt could be raised as to the propriety of the course pursued, or the decision given in favour of Senor Salamanca. No one appeared on behalf of the house of Baring on this occasion. I understand, in fact, that they never offered to take the quicksilver at a contract, but to act as agents for its sale at whatever price might suit the Government of Spain to dispose of it; advancing money on account, and receiving commission, as on a regular commercial consignment.

GOLD MINES OF SIBERIA.

Whilst the produce of the gold mines and the gold washings of Columbia, Brazil, and Spanish America generally has been for many years past and still continues on the decline—so much so, indeed, that, in most instances, the yield of the works no longer suffices to cover the cost of the capital and labour employed in the extraction, it is an interesting fact in the economical, still more than in the geological, sense, to remark, on the contrary, the extraordinary development and progress of gold mining industry in Siberia. The auriferous riches of that polar province of the Russian empire were matter of little more than conjecture until within the last fifteen years, and when attention was roused to the probable fact by chance discoveries of gold, the results of the first experiments of enterprising individuals did not by any means correspond to the expectations excited among adventurers, or appear to countenance the belief in the treasures with which the soil was said to be impregnated. The speculative spirit and thirst for gain, however, once aroused, was not readily to be discouraged by individual and repeated failures—failures resulting, in many instances, in the loss of capital, the waste of labour, and the ruin of speculators. Unwearied and unremitting toil and exertions were gradually rewarded with greater success, until at length the produce of gold registered from the works and washings of the auriferous sands of Siberia has become of prodigious and yearly increasing amount, as will be seen by the following return, embracing the last thirteen years:—

Years.	Poods.	Lbs.	Zolotniks.
1830	9	35	80
1831	13	19	35
1832	21	34	64
1833	38	23	92
1834	65	14	94
1835	90	19	64
1836	108	0	41
1837	132	34	55
1838	180	0	67
1839	162	0	92
1840	205	27	79
1841	256	37	14
1842	401	0	91
Total	1680	20	46

The Russian pood is equal to 36 lbs. 1 oz. 11 drs. avoirdupois; 40 Russian pounds go to the pood, and 96 zolotniks to the pound. Taking the yield for 1842, and calculating the pood at 36 lbs. in round numbers, the quantity in English weight would be 33,710 lbs. avoirdupois—say 3*l.* 17*s.* 9*d.* per ounce as rendered into Troy weight, would represent the value in round numbers of 1,138,000*l.* sterling.

INDUSTRIOUS MEETINGS.—Our announcement of the meetings of the Associations, in last week's *Journal*, we find was, unfortunately, incorrect. A correspondent, under date Wolverhampton, April 4, writes:—"We had a general meeting last week at the Swan Inn, and invariably meet a fortnight before quarter-day—consequently, our quarterly meetings do not take place until next week—viz., Walsall 11th, Wolverhampton 12th, Birmingham 13th."

DECREASE IN THE PRICE OF BRITISH IRON.—Since the commencement of 1843, a continued gradual depression in the price of English iron has taken place. In January, in that year, bar iron was quoted at 14*l.*; cargo in Wales, 13*l.*; bongs, 10*l.*; sheets, 15*l.*; pig in Wales, 6*l.* 5*s.*; pig in Clyde, 6*l.* Slight advances and increasing depression have marked the intervening period to the end of March, when the following prices only were obtained, being a falling off of about 21 per cent. in fifteen months:—bar, 10*l.*; cargo in Wales, 11*l.*; bongs, 15*l.*; sheets, 12*l.*; pig in Wales, 5*l.*; pig in Clyde, 6*l.*

RAPID INCREASE.—Among the recent importations at one port was one of 250 tons of Mexican copper coin, all of the same description, and in value about eight to six of British half-pence.—Cambrian.

CURRENT PRICES OF STOCKS AND SHARES.

STOCK EXCHANGE, Saturday morning, Twelve o'clock.

Consols Money, 96⅝ ⅞
Ditto Account, 96¾ ⅞
New 3½ per Cents., 102¼ ⅜
Bank Stock, —
Exchequer Bills, 65 70 pm.
Belgian Bonds, 5 per Cent., 104¼ ¾
Brazil, 5 per Cent., 74½ 75¼
Danish, 3 per Cent., 86 7
Portuguese, 5 per Cent., 40¾ 41
Dutch, 2½ per Cent., 54¼ ⅜
Ditto, 5 per Cent., 99¾ 100
Russian, 5 per Cent., 113¾ 14
Spanish, Actives, 5 per Cent., 23¼ ½
Ditto, 3 per Cent., 31⅞ 2
Chili, 6 per Cent., 88 90
Colombian, 6 per Cent., 24¾ ¾
Mexican, 5 per Cent., 29¼ 30
Peru, 19¾ 20

NATIONAL DEBT.—The Lords Commissioners of Her Majesty's Treasury having certified to the Commissioners for the Reduction of the National Debt, in pursuance of the act 10th George IV., c. 27, sec. 1, that the actual expenditure of the United Kingdom of Great Britain and Ireland exceeded the actual revenue thereof, for the year ended the 5th day of January, 1843, by the sum of 2,379,359*l.* 4*s.* 8*d.*, the Commissioners for the Reduction of the National Debt hereby give notice, that no sum will be applied by them on account of the Sinking Fund, under the provisions of the said act, between the 7th day of April, and the 5th day of July, 1843.

National Debt-office, April 6. — S. HIGHAM, Controller-General.

The premium on gold at Paris is 15½ per mille, which, at the English Mint price of 3*l.* 17*s.* 10½*d.* per ounce for standard gold, gives an exchange of 25 49, and the exchange at Paris on London at short being 25 65, it follows that gold is 0·64 per cent. dearer in London than in Paris.

By advices from Hamburgh the price of gold is 434 per mark, which, at the English Mint price of 3*l.* 17*s.* 10½*d.* per ounce for standard gold, gives an exchange of 13 9¾, and the exchange at Hamburgh on London at short being 13 11¼, it follows that gold is 0·64 per cent. dearer in London than in Hamburgh.

The course of exchange at New York on London is 105½ per cent., and the par of exchange between England and America being 109 23-40 per cent., it follows that the exchange is 4·07 per cent. against England. But the quoted exchange at New York being for bills at 60 days' sight, the interest must be deducted from the above difference.

[From our own correspondents.]

LATEST PRICES OF IRISH STOCKS.—3 per Cent. Consols, 96¼*l.* to 96½*l.*; 3½ Stock, 101*l.*; ditto New, 1026, 101*l.*; 3½ per Cent. Debentures, 93*l.*; Bank Stock, 182*l.*—Kingstown Railway, 107*l.*; Dublin and Drogheda, 79*l.*—Hibernian Bank, 39¾*l.*, Royal Bank, 18¾*l.*; Provincial Bank, 40*l.*—City of Dublin Steam Co., 102*l.*; ditto Stock, 1026, 40¾*l.*—Steam Ship Building Company, 40*l.*; British and Irish ditto, 5¾*l.*—National Insurance Company, 20¾*l.*; Patriotic, 7¾*l.*—Mining Company of Ireland, 12¾*l.*; Wicklow Copper Mines, 17¾*l.*

EDINBURGH, THURSDAY.—Edinburgh and Glasgow Railway, 50*l.*; Dalkeith and Edinburgh, 25*l.*; Glasgow and Greenock, 15*l.*; Glasgow and Garnkirk, 30*l.*; Glasgow and Ayrshire, 35*l.*; Wishaw and Coltness, 33*l.*; Dundee and Arbroath, 10*l.*; Arbroath and Forfar, 23*l.*—Bank of Scotland, 172¼*l.*; Royal Bank, 166¾*l.*; British Linen Company, 216*l.*; Commercial, 163¾*l.*; National, 14¾*l.*; Edinburgh and Leith, 6¾*l.*; Glasgow Union, 6*l.*; Western Bank of Scotland, 7*l.*; City of Glasgow, 9¾*l.*—Caledonian Fire and Life Insurance, 30*l.*; Hercules Fire, 13*l.*; North British Fire and Life, 20¾*l.*; Standard Life, 4¾*l.*—Edinburgh Gas, 54*l.*; Edinburgh and Leith Gas, 27*l.*—Forth and Clyde Canal, 135*l.*

BRISTOL, FRIDAY.—We have had but few transactions in railways this week, but our market closes to-day firm, at the following quotations:—Great Western Railway, 94¾*l.* to 95¾*l.*; ditto, halves, 63*l.* to 63¾*l.*; ditto, fifths, 18¾*l.* to 19¾*l.*; Bristol and Exeter, 59*l.* to 60*l.*; Bristol and Gloucester, 22*l.*; Birmingham and Gloucester, 49*l.* to 50*l.*; Birmingham and Derby, 40*l.* to 42*l.*; Cheltenham Union, 31*l.* to 32*l.*; London and Brighton, 35¾*l.* to 35¾*l.*; Eastern Counties, 10*l.* to 10¾*l.*—Bristol Gas Company, 37¾*l.* to 38¾*l.*; Clifton, 34*l.* to 35*l.*

HULL, THURSDAY.—The market has been better, and more business done.—Birmingham & Derby, 41*l.* to 42*l.*; Edinburgh and Glasgow, 49*l.* to 51*l.*; Great North of England, 60*l.*; Hull and Selby, 57¾*l.* to 58¾*l.*; Leeds and Selby, 105*l.*; London and Birmingham, 214*l.*; Liverpool and Manchester, 200*l.*; London and Brighton 36*l.* to 36¾*l.*; Manchester and Leeds, 81*l.*; Midland Counties, 83*l.*; Newcastle and Carlisle, 70*l.*; Northern and Eastern, 34¾*l.* to 35*l.*; North Midland, 66*l.*; South Eastern, 20¾*l.*; York and North Midland, 84¾*l.*—Yorkshire District Bank, 4¾*l.* to 5*l.*; Hull Banking Company, 6¾*l.* to 7*l.*—Hull Dock Company, 120*l.*; Hull Gas, 25*l.*; Hull Flax and Cotton Mills, 100*l.*; Hull Marine Insurance, 110*l.*

NEWCASTLE, THURSDAY.—Our share market continues dull and inanimate, although there is not much alteration in prices.—North of England Joint-Stock Bank, 3¾*l.*; Northumberland and Durham District, 6*l.*; Newcastle, Shields, and Sunderland Union, 6*l.*; Newcastle upon-Tyne Joint-Stock, 3¾*l.*; Newcastle Commercial, 6¾*l.*; Sunderland, 3¾*l.*; Darlington District, 5*l.*; Carlisle City and District, 26*l.*; Carlisle and Cumberland, 6¾*l.*; Stockton and Durham County, 5¾*l.*—Newcastle and Carlisle Railway, 70*l.*; Newcastle and North Shields, 25*l.*; BrandlingJunction, 20*l.*; Durham and Sunderland, 17*l.*; Clarence, 15*l.*; the Maryport and Carlisle, 55*l.*; Hartlepool Dock and Railway, 12¾*l.*; Bishop Auckland and Weardale, 6*l.*; Great North of England, 61*l.*—Newcastle Union Shipping Company, 2¾*l.*; Port of Newcastle, 1*l.*; London, Newcastle, and South Shields, 3*l.*; Gateshead and Tyne, 10*l.*—North and South Shields Steam Ferry, 110.—Newcastle Subscription Water Company, 33*l.*—Newcastle and Gateshead Union Gas Company, 7¾*l.*—Durham County Coal Company, 4*l.*; Northern Coal Mining Company, 1¾.

LIVERPOOL, FRIDAY.—Chester and Birkenhead Railway, 16¾*l.*; Eastern Counties, 10*l.*; Edinburgh and Glasgow, 49¾*l.*; Grand Junction, 200*l.*; Great Western, 94¾*l.*; Great North of England, 61*l.*; Lancaster and Preston, 53¾*l.*; Liverpool and Manchester, 201*l.*; London and Birmingham, 214*l.*; London and South Western, 63¾*l.*; London and Brighton, 36¾*l.*; Manchester, Bolton, and Bury, 53*l.*; Manchester and Birmingham, 31¾*l.*; Manchester and Leeds, 80*l.*; Midland Counties, 83¾*l.*; North Midland, 66¾*l.*; North Union, 7¾*l.*; Paris and Rouen, 27¾*l.*; South-Eastern, 20¾*l.*; York and North Midland, 80*l.*—Borough Bank, 14*l.*; Bank of Liverpool, 29¾*l.*; Commercial, 10*l.*; Liverpool Banking Company, 7¾*l.*; Manchester and Liverpool District, 9¾*l.*; North and South Wales, 6*l.*; Royal, 29¾*l.*; Union, 10¾*l.*—Fire and Life Assurance, 2¾*l.*; Marine Assurance, 2¾*l.*—Anderton Carrying Company, 4¾*l.*—Pohomeena's Bitumen Company, 3*l.*—Gas Light Company, 210*l.*; New Gas and Coke Company, 23*l.*—Harrington Dock, 76¾*l.*—Bootle Water-Works, 43*l.*; Liverpool and Harrington Water-Works, 42*l.*

BIRMINGHAM, THURSDAY.—London and Birmingham Railway, 214*l.* to 216*l.*; London and Brighton, 35¾*l.*; London and South Western, 63*l.* to 66*l.*; Great Western, 94*l.* to 95¾*l.*; Birmingham and Derby, 41*l.* to 42*l.*; Birmingham and Gloucester, 49*l.* to 50*l.*; Manchester and Leeds, 79*l.* to 81*l.*; Edinburgh and Glasgow, 49¾*l.* to 49¾*l.*—Birmingham Banking Company, 18¾*l.*; District, 6*l.*; Midland, 31*l.*—Birmingham Canal, 160*l.*; Birmingham and Worcester, 33*l.* to 34*l.*; Birmingham Water-Works, 39¾*l.*; Birmingham Gas, 100*l.*; Birmingham and Staffordshire, 8*ol.* to 81*l.*; Old Union Mill, 6¾*l.*; New ditto, 1¾*l.*

JOINT-STOCK BANKS.

Shares.	Company.	Paid.	Price	Shares.	Company.	Paid.	Price
15,000	Australasia	40	61¾	30,000	Liverpool Borough	10	14¾
20,000	Birmingham	10	19	20,000	Ditto Bank of	12½	30
20,000	British N. American	40	41¾	12,000	Ditto Banking Co.	10	9¾
10,000	Chatham & Gloucest.	5	17¾	10,000	Ditto Commercial	10	10
100,000	Commercial of Eng.	5	—	2,000	Ditto Royal	100	[illegible]
1,000	Commer. of London	100	140	100,000	Manch. & Liver. Dis.	10	10
20,000	Colonial	25	15¾	100,000	Manchester	10	4½
30,000	East of England	10	7¾	30,000	Manchester & Salford	10	10
10,000	Gloucestershire	10	31	20,000	National of Ireland	17½	13
4,000	Ionian	25	24	10,000	Natl. Provl. England	30	30¾
10,000	Leeds Banking Co.	10	10	60,000	North & South Wales	10	5
20,000	Leeds & West Riding	6¾	61	20,000	Provincial of Ireland	25	42¾
60,000	London & Westminst.	20	21¾	20,000	South Lancashire	7½	6¾
60,000	London Joint-Stock	10	10	20,000	W. of Eng. & S. Walesd.	12½	12
20,000	London and County	15	15	20,000	Union of Australia	25	32¾
15,000	Liverpool Albion	20	18½	60,000	Union of London	10	11

MISCELLANEOUS.

Shares.	Company.	Paid.	Price	Shares.	Company.	Paid.	Price
10,000	Anglo-Mexican Mint	10	10	2,100	Hungerford Market	100	31¾
10,000	Anti Dry-Rot	16¾	1	1,000	London Corn Exch.	37¾	30
10,000	Asphalte (Claridge)	4	½	8,000	London Cemeteries	70¾	15
10,000	Assam Tea Company	12½	4¾	5,000	London Cemetery	20	10
10,000	Austral. Agricultural	26¾	20	6,000	Lon. Rever. Int. Soc.	10	6
6,679	Australian Trust Co.	20	20¾	12,000	Met. Pat. Wood Paving	5	5
12,000	Bitumen Bottomore	5¾	¾	20,000	Mexican & S. American	7	¾
12,000	Ditto Poleronna	2	¾	—	New Brunswick (L.A.)	40	15
6,000	Brit. Amer. Land Co.	25¾	15	—	Peninsular & Oriental	50	40
4,000	Brit. Loan & Dis. Ins.	5¾	1¾	1,367	Rever. Int. Society	100	100
6,000	Brit. Rock & Pat. Salt	25	11	15,000	Royal Mail Steam Pck.	30	17
9,953	Canada Land Co.	32½	41	2,000	Rheb's Iron Foundry	40	30
6,000	E. C. of Cro. Amt. Dub.	20	1½	14,000	South Australian	25	17
4,000	Hardwick Patent Salt	25	1¾	1,000	Ship Owners' Towing	7½	15
2,792	Equitable Rever. Soc.	80	61	4,000	Thames Tunnel	50	9
20,000	Gen. Steam Navig.	14	17¾	10,000	Van Diemen's Land	18½	1
2,000	Gen. Rever. Int. Soc.	100	80	6,000	W. Lon. & Westmr. Cem.	—	20

COAL MARKET, LONDON.

MONDAY.—Prices of coals per ton at the close of the market:—Adair's Main 14 6—Harling's Hartley 15 6—Holywell 16—Ord's Redburgh 15—Wall's End Hilda 17 6—Killingworth 16—Holdon 21 6—Richardson's Tees 17—Seymour Tees 18—Sidney's Hartley 16.—Ships arrived, 15.

WEDNESDAY.—Chester Main 15 6—Davison's West Hartley 16—Harling's Hartley 16—Holywell Main 16—Old Tanfield 15—Russell's High Main 14 6—West Wylam 16 6—Wall's End Gibson 17 6—Hilda 17—Holmes 19—Riddle's 18—Todd's Stewart 19—Wharncliffe 19 6—Belmont 19 6—Braddyll's Hetton 20 6—East Hetton 18 6—Hetton 20 6—Lambton 20 3 to 20 6—Morrison 17 6—Russell's Hetton 20—Stewart's 20 6—Whitwell 18 6—Caradoc 20 6—Hasewell 19 6—Heugh Hall 18 6—Kelloe 18 6—Tennant's Hartlepool 19 6—Adelaide 19—Brown's Dunsey 18 6—Ravensworth 16 6—M'Lean's Tees 17 6—66, Sidney's Tees 19 3½, Tees 20—Cowpen's 16—Powell's Duffryn Steam 15.—Ships arrived, 61.

FRIDAY.—Adair's Main 14 6—Carr's Hartley 16—Chester Main 15 6—Davison's West Hartley 16 6—Dean's Primrose 14 6—Harling's Hartley 16—Holywell Main 16—New Tanfield 14 6—Old Tanfield 15 6—Ord's Redburgh 15 6—Ravensworth's West Hartley 16 6—Russell's High Main 14 6—Tanfield Moor Rote's 15—Tanfield Moor 17—Townley 14 6—West Wylam 16 6—Wylam 15 6—Wall's End Chester 16—Elms, Lea 16 6—Hilda 17—Holmes 19—Riddle's 18 6—Ramsay 16—Todd's Stewart 19—Lyons 19 6—Braddyll's Hetton 20 6—Hasewell 20 6—Hetton 20 6—Russell's Hetton 20 6—Stewart's 20 6 to 20 6—Whitwell 19 6—Hartlepool 20 6—Tennant's Hartlepool 19 6—Adelaide 19—Cowpen Tees 19—Seymour Tees 19 6—Tees 20—Cowpen 16 6—Hartley 15 6—Powell's Duffryn S. ram. 19 6—Sidney's Hartley 18 6—66, Sidney's 17 6.—Ships arrived, 128.

SALE OF COPPER ORES IN CORNWALL.

Sampled March 22, and sold at Serpell's Hotel, Pool, April 6.

Mines.	Tons.	Price.	Purchasers.	Mines.	Tons.	Price.	Purchasers.
E. Crofty	95	£4 16 6	Williams.	United H.	57	£3 6 0	Freemans.
ditto	90	7 3 0	—	ditto	43	9 7 0	—
ditto	92	4 16 0	—	ditto	70	5 7 0	English Co.
ditto	73	10 7 0	—	P. Consols	115	7 1 0	P. Grenfells.
ditto	66	4 6 6	—	ditto	121	5 3 0	Vivians.
ditto	61	5 11 0	—	ditto	77	5 10 0	P. Grenfells.
ditto	55	4 17 6	Vivians.	Fowey C.	105	6 6 0	Vivians.
ditto	51	6 16 0	Williams.	ditto	84	4 16 6	Williams.
Longclose	92	4 16 0	—	ditto	35	3 0 0	Vivians.
ditto	54	8 5 0	—	ditto	33	3 0 0	Williams.
Dolcoath	90	4 14 6	Vivians.	Trewavas	88	7 1 0	—
ditto	39½	6 11 0	Freemans.	ditto	87	5 7 0	Nevill & Co.
ditto	39½	6 11 0	Nevill & Co.	East Pool	89	4 1 6	Vivians.
ditto	70	1 16 6	Vivians.	ditto	64	5 13 6	P. Grenfells.
ditto	68	3 11 0	English Co.	Brewer	77	5 6 6	Williams.
ditto	60	1 17 0	Nevill & Co.	ditto	55	4 1 6	—
ditto	40	4 10 0	—	Tretoil	77	4 15 6	Nevill & Co.
CamborneV.	74	5 12 0	English Co.	ditto	29	2 1 6	—
ditto	63	6 16 6	—	W. Harriet	51	3 6 0	Vivians.
ditto	58	5 10 6	—	ditto	50	3 6 0	Nevill & Co.
ditto	28½	2 9 6	Vivians.	Wh. Vor	47	3 2 6	English Co.
ditto	28½	2 8 6	P. Grenfells.	ditto	34	2 12 6	—
ditto	50	4 5 6	English Co.	ditto	34	2 12 6	Vivians.
Stray Park	74	4 19 0	—	Wh. Toigus	18½	1 15 0	Freemans.
S. Basset	112	4 11 0	Williams.	ditto	18½	1 15 0	P. Grenfells.
ditto	76	4 15 6	—	W. Penrose	32	4 2 6	—
ditto	60	9 8 6	—	ditto	4	0 10 0	Vivians.
ditto	59	4 16 6	P. Grenfells.	Tregolian	31	4 4 6	P. Grenfells.
ditto	25	3 12 6	Vivians.	Wh. Towan	11	2 11 0	Nevill & Co.
United H.	130	5 14 6	Freemans.	Lossavo	6	15 15 0	P. Grenfells.
ditto	72	3 2 6	Vivians.	Wh. Rinsey	4	6 4 0	—
ditto	27	3 6 0	—	ditto	1	23 10 0	—

TOTAL PRODUCE.

East Wh. Crofty / Longclose	714	£3730 18 0	Brewer	132 £622 15 6
Dolcoath	421	1654 3 0	Tretoil	106 427 17 0
Camborne Vean / Stray Park	377	1912 12 6	Wh. Harriet	101 431 6 0
South Wh. Basset	328	1759 0 6	Wh. Vor	38 174 11 6
United Hills	319	1806 10 0	Wh. Toigus	37 64 15 0
Par Consols	301	1791 16 0	Wh. Penrose	36 135 4 0
Fowey Consols	260	1261 2 0	Tregolian	31 134 1 6
Wh. Trewavas	175	1065 17 0	Wh. Towan	11 28 1 0
East Pool	153	725 17 6	Lossavo	6 94 10 0
			Wh. Rinsey	5 49 6 0

Average standard, 107*l.* 3*s.*—Average produce, 7¼.—Average price, 4*l.* 18*s.* 0*d.*—Quantity of ore, 3569 tons.—Quantity of fine copper, 255 tons 5 cwt.—Amount of money, 17,340*l.* 4*s.* 0*d.*—Average standard of last sale, 108*l.* 1*s.*—Average produce 6¾.

COMPANIES BY WHOM THE ORES WERE PURCHASED.

	Tons.	Amount.
English Copper Company	464½	£2290 7 9
Vivian and Sons	774	3176 6 6
Freeman and Co.	284	1206 19 0
P. Grenfell and Sons	481	2870 6 8
Sims, Willyams, Neville, Druce, and Co.	401¾	1772 1 6
Williams, Foster, and Co.	1240	6664 12 0
Total	3569	£17,340 4 0

Copper ores for sale on Thursday next, at Andrew's Hotel, Redruth.—Mines and Parcels.—Wheal Friendship, 484; Wheal Virgin, 301; Fowey Consols, 236; Wheal Providence, 348; Botallack, 232; Wheal Darlington, 212; Levant, 148; Providence Mines, 124; Wheal Trenwith, 110; Cregg Brawe, 64; St. Ives Consols, 87; Wheal Neptune, 67; Tregothnan Consols, 58; Speare Moor, 9.—Total, 2541.

Copper ores for sale on Thursday week, at Andrew's Hotel, Redruth.—Mines and Parcels.—Tresavean, 602; Par Consols, 236; Fowey Consols, 246; Holmbush, 203; West Caradon, 165; Wheal Gorland, 63; Charlestown United Mines, 35; Grambler and St. Aubyn, 52; Wheal Burrow, 24.—Total, 1626 tons.

QUARTERLY SALE OF COPPER ORES IN CORNWALL.—Copper ores, 37,215 (21 cwts.)—Fine Copper, 2920 tons 15 cwts.—Amount of money, 215,944*l.* 3*s.* 6*d.*—Average standard, 111*l.* 3*s.*—Average produce, 7⅞ & 1-16th.—Average price per 21 cwts., 5*l.* 14*s.* 6*d.*—March 31.

SALE OF COPPER ORES AT SWANSEA.

Copper ores for sale April 12.—Cobre 120, ditto 118, ditto 166, ditto 71, ditto 49, ditto 104, ditto 102, ditto 94, ditto 65, ditto 39, ditto 10, ditto 98, ditto 97, ditto 96, ditto 98, ditto 91, ditto 79, ditto 79, ditto 70, ditto 48, ditto 61, ditto 60, ditto 62, ditto 42, ditto 53, ditto 41, ditto 8, ditto 33, ditto 7—Knockmahon 134, ditto 103, ditto 104, ditto 68, ditto 85, ditto 80, ditto 77, ditto 70—Santiago 103, ditto 104, ditto 100, ditto 91, ditto 98, ditto 09, ditto 74—ditto 80—Bearhaven 128, ditto 113, ditto 98, ditto 78—Skull Mine 64—Cosheen 87—Cronebane 16, ditto 16—Kenmare 31—Connorree 13.—Total, 4093 tons.

LATEST CURRENT PRICES OF METALS.

LONDON, APRIL 7, 1843.

	£ s. d.		£ s. d.
SPELTER—Foreign, ton	0 0 to 23 0 0	COPPER—Old per lb.	0 0 8
" For delivery	0 0 0 21 10 0	" Cake p. ton 0 0 0 to	82 0 0
ZINC—English sheet	0 0 0 30 0 0	" For. cake 0 0 0 to	86 0 0
QUICKSILVER per lb.	0 4 6	" " tile 0 0 0 to	90 0 0
IRON—English bar, &c. p. ton	5 7 6	TIN—English, blocks, &c. cwt.	3 3 0
" Nail rods	0 0 0 6 0 0	" " bars 3 4 0	3 5 0
" Hoops	0 0 0 7 10 0	" Foreign, Banca 0 0 0	3 3 0
" Sheets	0 0 0 8 10 0	" " Straits 0 0 0	3 0 0
" Cargo in Wales	4 5 0 4 10 0	" " Peruvian 0 0 0	2 10 0
" Pig, No. 1, Wales	0 0 0 3 10 0	Tin plates, No. IC. p. box 1 5 0	1 6 0
" No. 1, Clyde	0 0 0 3 0 0	" " No. IX. 1 11 0	1 14 0
" For., Swedish	10 10 0 10 15 0	" wasters 3s. p. box less	
" Russian, CCND	16 10 0	LEAD—Sheet milled p. ton	18 10 0
" " PSI	—	" Shot, patent	22 0 0
" " Gourieff	13 10 0	" Red	22 0 0
" " Archangel	—	" White	24 0 0
STEEL—Swedish keg p. ton	17 10 0	PIG-LEAD—English 17 0 0	17 10 0
" " Faggot 0 0 0	—	" Spanish 0 0 0	17 0 0
COPPER—English sheathing lb.	0 0 8¾	" American 0 0 0	17 0 0

THE INDIAN METAL MARKETS.

[By the overland mail.]

CALCUTTA, FEB. 14.—The return from China of a large number of transports has caused an active demand for sheathing copper of late, and prices have risen to 44 to 45 company's rupees per fy. maund. Stocks are very small just now. Of other descriptions of copper, we can quote no rise in price, or improvement in demand. Stocks being light, however, and the expected supplies short, a considerably enhanced price may be expected soon. The imports last month were—Braziers' and sheet, 642 maunds; tile and ingot, 620; nails, 20; old, 270.

IRON.—A good deal of business has been done in English flat, bar, square, &c., during the month; but prices do not show any improvement, being still very low, and not paying. Sheet and hoop of good assortments are in fair demand, and paying prices have been realised. The imports in January last were as follow:—Bar, bolt, and rod, 20,300 maunds; hoop, 860; sheet, 5701.

SPELTER.—This article has risen considerably since our last, sales having been effected at current rs. 14-14 per fy. md.; and, stocks not being large, a further improvement may be expected to take place. Imports in January, 2671 maunds.

LEAD.—There have been few or no transactions in pig or sheet lead during the month, and prices are still nominal. White-lead has been sold at current rs. 9-4 per fy. md.; and red-lead, at current rs. 10 per fy. md. The imports last month were—pig, 1410 maunds.

[From the *Midland Counties Herald* of Thursday.]

The market for metals is still without change—the letters from Wales describing no immediate hope of an advance in the price of iron in bars; and in other articles there is no speculative business, excepting occasional small transactions in spelter, but the price of which cannot be raised beyond about 23*l.* per ton.

EXPORTATION OF THE PRECIOUS METALS.—The following are the official returns of the exports of gold and silver from the port of London for the week ending Thursday last:—

Silver coin to Hamburgh	3,000	ounces.
" Rotterdam	28,000	"
Silver bars to Rotterdam	66,430	"
Gold coin to Charleston	2,500	"

GOLD AND SILVER.—The following is the amount of ounces of gold and silver bullion, or coin, exported from Great Britain, from the year 1837 to the 10th of March, 1843, according to an official return just made to the House of Commons:—

Years.	Oz. of Gold.	Oz. of Silver.
1837	291,497	11,640,006
1838	487,431	11,308,423
1839	637,103	11,917,430
1840	274,871	13,604,377
1841	51,088	13,464,423
1842	117,190	13,082,708
1843	166,818	1,443,230
Total	2,085,347	77,308,117

THE LONDON GAZETTE—BANKRUPTS.

TUESDAY.—H. Wood, Fleet-street, bookseller—W. Burton, Cambridge, draper—J. Hutton, Ringwood, Hampshire, draper—J. S. Hitchcock, New Sarum, Wiltshire, hosier—J. Vye, Bridge-house place, Borough, surgical instrument maker—J. Howe, Sheffield, table knife manufacturer—H. Morris, Stourbridge, Worcestershire, grocer—E. Wheeler, Birmingham, cornfactor—T. Hardey, Newcastle-under-Lyme, Staffordshire, hat manufacturer—J. Higham, Knowsley, Lancashire, victualler—J. Turrell, Sheffield, tailor—G. Ratcliffe, Sheffield, fender manufacturer—T. Brook, Longwood, Yorkshire, woollen cloth merchant—J. E. Pearson, Sheffield, wine merchant—J. Evans, Liverpool, coal dealer.

FRIDAY.—John Shaw, Seymour-place, Camden-town, builder—B. Vines, Poultry, grocer—E. Redmond and J. Collins, Charles-street, City-road, hinge manufacturers—J. Coe Wales, Stowmarket, Suffolk, wine merchant—C. Williams, Tillingham, Essex, draper—J. George, Bread-street, Cheapside, silk manufacturer—T. Rolph, New Bridge-street, City, merchant—J. M. Fuller, Flixton, Lancashire, logwood grinder—T. M. Whitaker, Liverpool, hatter—J. Whitaker, Haworth, Lancashire, woollen manufacturer—R. Lewis, Haverfordwest, cabinet maker—R. Dickin, Longdon, Shropshire, draper—J. Mathias, Wadebridge, Cornwall, grocer.

CURRENT PRICES OF MATERIALS IN CORNWALL,

AS SUPPLIED AT THE PRINCIPAL MINES.

	s. d.		s. d.
Common iron, per cwt.	6s 0d	Barrow bends	0s 0d
Half-inch square	7 0	Sheet lead	22 0
Five-eighth ditto	7 6	White ground lead	25 0
Best tough whim chain	30 0	Red lead	24 0
Boiler plates	11 6	Tallow	40 0
Whim kibble ditto	15 0	Candles, per dozen lbs.	5 6
Hoop iron	9 6	Gunpowder, per 100 lbs.	40 0
Best rolled iron	8 6	Leather bends, per lb.	1 26
Charcoal iron	13 6	Ropes	36 0
Inch ditto	11 6	Flat ropes	38 0
Half-inch ditto	12 6	Hemp	40 0
Blistered steel	30 0	White yarn, per cwt.	36 0
H 2 steel	22 0	White rope	36 0
Nail rods	11 0	Engine shag	0 6
Miners' shovels	30 0	Stockholm tar	25 0
Ditto steel pointed	50 0	Linseed oil, per gallon	3 0
Board nails	14 3	Rape ditto	4 6
Half-board ditto	16 3	Brass-wire sieves, each	40 0
Hatch ditto	19 0	Iron-wire ditto	25 0
Half-hatch ditto	22 0	Iron-wire work, per foot	1 4
3s. nails	14 6	Machine bottoms	13 0
Five-inch spike ditto	14 0	Balk	0 11
Casing ditto	15 0	Birch, per foot	1 4
28 lbs. nails	16 6	Pine	40 0
14 ditto	18 0	Shovel hilts	2 0
Coals, per ton, at quay	9 6	Pick hilts	1 4

PRICES OF MINING SHARES.

The intelligence we have this week received from Mexico by the mail is of an encouraging nature. For the United Mexican Mining Company there is a remittance of $28,000, and 3000*l.* in bills; the monthly returns had increased, and some improvement taken place in the produce of new workings; and there is no doubt, from present appearances, but that the next remittance will enable the directors to pay off the red scrip debt, when future profits realised, will be applied to dividends. The Real del Monte report bears out former statements of the improved appearances of some parts of the mine, and upon the whole is favourable. It is much, however, to be feared that the result of the competition for the produce of the mines of Almaden for the next four years, on the 28th ult., which is likely to raise the price of quicksilver at least 30 per cent., will prove a serious drawback to the success of the Mexican mines, from the quantities used by them in the process of amalgamation, and the serious consequent addition to their current expenses.

BRITISH MINES.

Shares.	Company.	Paid.	Price
500	Anglesey	5	—
4,000	Bedford	1½	3½
100	Botallack	175	1000
10,000	British Iron	70	—
8,000	Blaenavon	50	—
120	Brewer	—	140
79	Budnick	—	20
1,000	Carn Brea	15	—
5,000	Con. Tretoil MiningAss.	4	½
2,000	Cornubian Lead Co.	2	3½
512	Cook's Kitchen	—	50
112	Charlestown	—	300
128	Cregg Brawe	40	—
128	Cosheen	15	150
10,000	DurhamCountyCoalCo.	37	—
128	East Pool	—	350
100	Great Consols	97	600
10,000	Hibernian	12½	—
1,000	Holmbush	14	49
2,000	Isle of Sark (Guernsey)	11	—
80	Levant	—	430
20,000	Mining Co. of Ireland	7	13¾
128	Mostyn Mines	100	—
70	North Roskear	—	300
3,000	Polberou Consols	10	—
10,000	Rhymney Iron	50	—
1,000	Roaring Water	½	8
128	South Caradon	—	800
800	South Towan	10	1½
64	SouthWheal Basset	—	500
57	Spearn Moor	70	100
135	Tregolian	—	—
4,000	Treleigh Consols	5	1½ 2
6,000	TamarConsols	3	10
6,000	Tincroft	7	13¾
128	Trewavas	—	120

BRITISH MINES—*continued.*

Shares.	Company.	Paid.	Price
129	Treviskey and Barrier	—	300
96	Tresavean	—	1200
120	Trethellan	—	230
4,000	United Hills	5	4
6,000	Wicklow Copper	5	—
3,845	West Wheal Jewel	10	15
120	West Trethellan	75	90
59	Wheal Vor	500	—
1,000	Wheal Bandon	¾	6
1,000	West Carbery	15	12¾

FOREIGN MINES.

Shares.	Company.	Paid.	Price
5,000	Alten Mining Company	13½	3½
10,000	Anglo Mexican Co.	100	3½
3,374	Do. Subscription	25	3
2,000	Bolanos	150	4
	Ditto Scrip	15	4½
10,000	Brazilian Imperial	21	9½
10,000	Bolivar	20	—
10,000	Ditto Scrip	10	2
10,000	CataBranca—Brazilian Company	6¼	4 5
12,000	Cobre CopperCompany	40	—
8,500	Colombian Co. regis.	55	—
10,000	Copiapo Mining Co.	13½	9
10,000	General Mining Asso.	20	—
5,351	Mexican Company	38¾	—
12,000	Mocoabus and Cocaes	25	4½
22,310	R1. del Monte, regis. / Do. unregistered	29¾	4 / 3½ 4
	Ditto Loan Notes	150	120
7,000	Royal Santiago	10	22
11,000	St. John d'el Rey	15	4½ 5
10,000	United Mexican	40	2¾
	Black Scrip, addl. capital	5	3
	Red New Scrip	1½	4

PROBABLE EFFECTS OF THE QUICKSILVER COMPETITION ON THE MEXICAN MINES.

[From the *Times* of this morning.]

By private information received from Madrid, and from a source which we have every reason to believe is authentic, it appears that Messrs. Rothschild and Co. are still the contractors for the Almaden mines. The statement is, that as soon as M. Salamanca was declared the victor at the bidding, so fully described in the letter from Madrid [inserted in another column of the *Mining Journal*], M. Wiesweiler, the agent for Messrs. Rothschild, went up to him and took the responsibility of the contract off his hands, guaranteeing to give him one-third of the profits, and to advance all the capital required for the working of the mines, and the 30,000,000 reals for the Government. According to this authority, the contract to carry out this arrangement is already signed.

While this sale of the Almaden monopoly is so much a subject of public security, its probable effect is contemplated with great uneasiness by some who are viewing it in connection with the productiveness of the Mexican silver mines, where quicksilver is the chief material used to obtain the silver. We learn that, during the last century, when Mexico was under the Spanish dominion, quicksilver was supplied to the mines at the rate of $40 per quintal. In the year 1828, soon after the British companies had commenced operations, the price advanced to $60 per quintal in the city of Mexico, being 1*s.* 9*d.* per lb. in England. A further advance to 4*s.* per lb. in London took place, under the monopoly held by the Messrs. Rothschild, and in Mexico it has ranged from $124 to $130 the quintal. Now, the silver produced from the whole of the Mexican mines by means of amalgamation is about 1,400,000 marcs per annum on an average of five years, and the annual consumption of quicksilver is 1,400,000 lbs., or 14,000 quintals, being at the rate of 1 lb. per marc. The entire quantity of quicksilver obtained from the Almaden mines is about 22,000 quintals per annum, and thus the Mexican mines alone are sufficient to absorb two-thirds of it. Comparing the price of quicksilver now with that in 1828, as above stated, we find that the extra charge to the Mexican mines is nearly $1,000,000. It is to be perfectly understood that the small portion of silver obtained by smelting, where no quicksilver is required, is entirely left out of the above account, so that no fallacy can arise on that score. Moreover, this information, on the subject of the mines, and the consumption of quicksilver, is furnished by a gentleman who is well known for his experience on the subject.

The high price of quicksilver is found productive of the most serious consequences. A number of silver mines are left unworked, partly because the capital required to purchase quicksilver is beyond the means of the miner, and partly because a large proportion of the ore is too poor to allow a profit on the employment of quicksilver at the present price. The wish, therefore, is becoming pretty general, that chemical experiments may lead to the discovery of some material that may be used as a substitute for quicksilver, or that Mexico may look to her own quicksilver mines, and see whether she cannot throw off her present dependence on the mines of Spain.

RAILWAY SHARE LIST AND TRAFFIC RETURNS.

Line.	Entire Lgth.	Now Open.	Present actual cost.	Pd. on Share.	Val. of Share.	Last week's returns.
Arbroath and Forfar Railway	15	15	£ 136,705	26	22	£194 7 9
Birmingham & Derby Junc.	48½	48½	1,140,000	100	43	1101 3 9
Birmingham and Gloucester	55	55	1,460,431	100	49	1830 11 0
Brandling Junction	23	23	434,924	50	—	729 3 5
Chester and Birkenhead	14½	14½	538,424	50	30	320 9 3
Dublin and Kingstown	6	6	340,202	100	77½	666 11 5
Dundee and Arbroath	16¾	16¾	141,540	25	25	300 3 4
Durham and Sunderland	16	18	366,132	44¾	18	330 0 11
Eastern Counties*	126	51	2,490,000	23	10¼	1820 7 9
Edinburgh and Glasgow	46	46	1,313,407	50	49½	1018 13 0
Glasgow and Ayr	51	40	930,504	50	40	964 0 5
Glasgow and Paisley Joint	22½	22½	790,200	25	25	843 16 11
Gd. Junc. & Chester&Crewe	113¾	113¾	2,314,330	100	191	6466 17 10
Great North of England	74	45	1,301,671	100	60¾	1224 0 6
Great Western	118½	118½	6,440,023	65	95	11868 17 10
Hayle	18	18	125,000	100	—	—
Hull and Selby	31	31	645,000	50	58¾	398 0 11
Lancaster & Preston Junc.	20¾	20¾	433,310	47	57¼	—
Liverpool and Manchester	31	31	1,313,333	100	192	4136 14 4
London and Birmingham	112¾	112¾	5,822,619	100	213	16002 14 6
London and Blackwall	3¾	3¾	1,220,275	16¾	3¾	698 4 10
London and Brighton	46	46	2,200,042	50	35¾	2028 10 1
London and Croydon	10¾	10¾	603,671	18¾	11¾	294 4 6
London and Greenwich	3¾	3¾	1,018,020	12¾	4¾	651 5 10
London and SouthWestern	93¾	93¾	2,380,034	39¾	63	3342 0 1
Manchester, Bolton, & Bury	10	10	777,287	50	50	467 0 4¾
Manchester & Birmingham	40	31	1,600,000	40	31¾	3349 0 5
Manchester and Leeds	50	50	3,600,200	70	80¾	4122 4 4
Midland Counties	57	57	1,600,140	100	83¾	2806 7 4¾
Newcastle and Carlisle	61	61	1,201,300	100	70	1435 18 7
Newcastle and N. Shields	7	7	213,470	45	44	304 11 11
Northern and Eastern†	32¾	32¾	800,807	45	35	1303 9 1
North Midland	72¾	72¾	3,003,102	100	66¾	3318 9 5
North Union	22	22	613,429	75	75¾	—
Preston and Wyre	15	18	337,000	50	36	148 5 0
Sheffield and Manchester	40	11	312,004	32¾	22¾	343 14 5
South Eastern	67	44	1,600,007	30	20¾	1734 11 6
Taff Vale	30	30	530,720	100	—	448 13 6
Ulster	25	25	314,310	25	—	423 13 6
York and North Midland	37	37	451,461	50	87¾	1428 19 6

THAMES TUNNEL.

The number of passengers who passed through the Tunnel in the week ending April 6, was 106,071, yielding a revenue of £445 19*s.* 4*d.*

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